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TRANSACTIONS

OF THE

Essex Agricultural Society,

FOR

1858.

PUBLISHED BY ORDER OF THE SOCIETY.

DECEMBER, 1858.

1858.

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TRANSACTIONS

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NEWBURYPORT:
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ADDRESS,

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BY GEORGE B. LORING.

Mr. President and Gentlemen of the Society :—

A refulgent and luxuriant summer has brought us to that bounteous harvest season in which we are accustomed to come up to our annual festival, and take counsel together of our experiences in agriculture. We have indeed abundant reason to be grateful to an overruling Providence, which has smiled upon our endeavors, and has taught us, in a time of distrust and disaster, how true the earth and sky are to the olden promises.

But I should fail to express the foremost thought of every member of our society, did I neglect to dwell upon that bereavement which is brought before us most sorrowfully on this day, and on this occasion. In the midst of all our rejoicings and congratulations, there is one void which rests with a painful sense upon all who have devoted themselves to our fraternity. The place once filled by one of our most worthy Presidents, the Hon. Moses Newell, is now vacant. The manly and hearty enthusiasm which he imparted to our annual meetings, is gone. And it remains for us as a part of our duty, to emulate his example, and to sustain with his spirit the work which belongs to us as associated farmers of this his native county, for he was essentially the impersonation of the duty which we have taken upon ourselves. A farmer, born upon our soil, he

learned in his infancy the true genius of a farmer's life, and as he advanced to manhood, he grew in mind and body to the robust proportions demanded by the farmer's calling. His own lands were large, and the place was early assigned him of high authority in all matters of agriculture. He had a quick and sagacious eye, and a calm and correct judgment. A natural instinct seemed to direct his views aright, and from his genial and generous temperament, there went out a kindly interest in all agricultural enterprise, and a warm encouragement for all who were engaged in the work he loved so well. He may truly be called the public farmer of our county, for to him, of all men among us, was the public attention directed, whenever questions arose of general interest to the cause of agriculture. It was he who was selected to distribute among us improved breeds of cattle. It was he who spoke for our society in the State Board of Agriculture. It was he who represented our county honorably and well in the National Society. It was he who charmed the great farmers of the south and west by the cordial liberality of his feelings, and by the honest wisdom which characterized his thoughts. He had secured the warmest friendship of the late distinguished senator from the young and growing state of Texas, and in his intercourse with that liberal and sagacious statesman he seemed to cherish that tie which binds our ancient commonwealth in indissoluble bonds with the great agricultural regions which send from our farthest frontiers the vigor of perpetual youth to our mature republic. He bestowed upon our society and upon our county the benefit of his good reputation abroad, and of his good counsels at home. And while he served his state in her highest seats with honor, while he performed the part of a peaceable, honest and good tempered citizen, while he exercised those domestic virtues which are too sacred to be torn from the spot in which they were cherished, even for public admiration, while he displayed in all his duties an intellectual strength and precision which education alone cannot give, while he carried with him the harmonious influence of a truly kind heart, while he invigorated every public act in which he was engaged, while he encouraged a spirit of enterprise and improvement, while he abored always first for the good of others, he won a position

of high value and commanding excellence, as a sensible, liberal, honest and high-toned American farmer.

His services to our society can never be forgotten. Whatever station he was called on to fill, he filled it with fidelity. In our ranks he was a good soldier; and in presiding over our society, he was indeed in every point the farmer deliberating with his brethren.

It is not for him alone that I look around me in vain. Since we last met, my native town has been deprived of one of its most useful and exemplary citizens, and our society has lost one of its oldest and most valuable members. The Hon. William Johnson, of North Andover, has left behind him a reputation as an honest and upright magistrate, a conscientious and trustworthy adviser, and a prudent and thriving farmer. He belonged to a family distinguished for its substantial virtues, and in sustaining its character he performed his part well. He was one of a race of staunch and sturdy men, who, during the last generation, stood around the institutions of our community and of our common country, to protect and elevate them. He was a warm friend, an agreeable companion, a kind and liberal neighbor. The last acts of his life indicated his just appreciation of the means by which society is to be preserved and improved. As a member of our Board of Trustees, he took a high stand at a time when his associates were men who adorned our country; and he never lost that interest in our association which had led him through a long and active life to encourage the pursuits of agriculture.

I have felt that I cannot pay a more fitting tribute to the memory of these, our late companions, nor occupy your time more appropriately and profitably, than by considering the duties and opportunities which belong to us as an agricultural society.

Now, gentlemen, it was not simply to excite a spirit of emulation in the farmers of this county, it was not to create a rivalry here which might end in enriching the soil and embittering the people, it was not to record a chapter of fortunate accidents, a long list of mammoth fruits and monster animals, it was not to encourage an ill-regulated and unprofitable strife for excellence, that our fathers founded this society in which we

take pride, as in a rich inheritance. Do you suppose the wise and practical patriot and statesman, whose lofty duties in the service of his country, established an intimacy between the planter of Mount Vernon and the farmer of Wenham, which gave a glowing dawn to our rising republic, and shed the golden sunset hues of these great lives over American agriculture, had no higher aim than this, when he gave the first impulse to our foundation? It was the recorded experience of more than a quarter of a century which he desired to accumulate, and we are now living to enjoy the realization of those hopes with which his mind was filled. His dreams are our realities. Year after year the work has been going on, until the farmers of this county have the classics and text-books of their education in the pages of your transactions. Here, on this very soil, those facts have been gathered, which are important to the daily life of every man who dwells upon this same corner of the earth, and under this same arch of the sky. Could those men, who, when this society was formed, felt that a clay farm was a reproach and a stumbling block to agriculture, whose chiefest agricultural skill consisted in selecting the choicest soils, whose knowledge of manures extended hardly beyond their own barn yards, whose surface drainage destroyed the symmetry of their "meadows and fields," whose machinery consisted in the intelligence and untiring industry of the farm labor of those days, and whose success in agriculture in spite of all obstacles, should teach us a most encouraging lesson, could those men have pondered over the record of under-draining and deep ploughing, could they have studied the experiments made with all the fertilizers which sea and land have furnished from their ample stores, could they have learned how labor may be lightened and all farming operations be facilitated by labor saving machines, could their thoughts have been stimulated and instructed by the records of this society, if by nothing more, would not the dark corners in which they were groping have been filled with the light of noon-day? If the wheel of time could be reversed, and, waking them from their long sleep, could carry back to them the knowledge which we possess, were it only that rudely raked together in our own little circle, the design of our society would seem to them almost more than fulfilled.

For I look upon an agricultural society as in the highest sense an agricultural school, in which all are teachers, and all are pupils. And in this lies its most important duty. The best professor of agricultural chemistry, is he who comes embrowned from the compost heap, which by judicious application has forced a hundred bushels of corn from each of his well cultivated acres. The best teacher of the art of tilling the soil, is he, who has by long experience become acquainted with the habits of plants, from their tenderest infancy to the ripened harvest. The best expounder of agricultural truths, is he who has learned by diligence and perseverance; with a liberal and enquiring mind, what those economies are which give success to the farmer. The best farmer is he, who, while he becomes intimate with the laws of nature; and learns her mysteries so far as she will reveal them, has a quick eye for those useful discoveries and inventions which the ingenuity of man is constantly laying at the feet of agriculture. And herein lies the great end of agricultural education, get it where you will, from the school, or the club, or from those societies which excite investigation and experiment by the stimulus of competition.

And it is difficult for agricultural education to go further. For agriculture has not yet become a fixed science. The astronomer calculates the courses of the stars, and runs his eye with unerring precision along those erratic orbits which are traversed but once in centuries. The chemist reduces the solid earth, the waters, and the invisible air to their original elements, and learns the hidden affinities with the certainty of law. But for the farmer "the wind bloweth where it listeth. Thou hearest the sound thereof, but thou canst not tell whence it cometh or whither it goeth." The soils submit patiently to the most searching analyses, but they baffle all inquiry into that secret principle of life which the art of man has never reached, and which is known only to those acute and delicate investigaters, whose thousand fibres draw forth that sustenance which gives stature to the mountain pine, and clothes the valleys with their living verdure. Men begin to vaunt themselves upon their success in supplying the human race with food, when a mysterious disease invades one great staple of their productions, and year after year rolls on without revealing to the anxious explor-

er the slightest remedy. One of the illustrious minds of the age applies the full power of science to supplying the deficiencies of every soil, and to furnishing each plant with its own peculiar food, but is finally obliged to acknowledge, that the relation existing between the earth and the fruits thereof, is not to be reached by any human power. The changing seasons send abroad their decrees, the winds exert their influences, the sun comes forth on its errand, night shuts down over the earth, the rain and the dews descend, heat and cold come in their appointed times, the earth goes on with its silent changes, all warning man that not as a dictator, but as a patient and willing servant can he hope to reap that reward which the soil will always yield.

The science of agriculture is therefore of all sciences the most uncertain, whenever you would pass beyond the bounds of actual experience. The details of farming may indeed be taught. The use of the implements of husbandry is something that must be learned. A knowledge of the proper rotation of crops, and of the adaptation of soils to the vegetable kingdom, comes from teaching and observation. The rules applicable to the proper proportions of animals may be got in the schools. Building and draining and planting and fertilizing, may all be instilled into the mind, until the student of agriculture may go forth ready to subdue the hardest soil, and filled with tastes which will make his farm agreeable to the eye, as well as an addition to the wealth of the community. So far perhaps agriculture may be made a science. And so far, an agricultural society is capable of furnishing the principles of that science.

In such a school as this, who are the professors and teachers? Is not every member who contributes his mite to the treasury of knowledge? I have seen a young man in our own county who by care and diligence and skill and method, has procured year after year, from soil yielding previously hardly enough to pay its taxes, a crop of turnips which gave him a handsome annual income. Is not this young man a good teacher in the science of agriculture? I have seen one of the most thriving towns in this section of the state enriched, until its whole population appears to be elevated above the thought

of want, by a skilful devotion to its onion crop. Have the farmers of that town no claims to be considered capable professors in the school of agriculture? I have known an old orchard not far from us, to be brought from a state of almost hopeless decay and barrenness, to the most abundant bearing, by patient and continued cultivation. Is not this actual fact, established here in our own borders, a lesson which every farmer in this county can learn, and by which he can profit? I have admired from my childhood the fruitful fields, and the agricultural system of an ample farm in one of your towns, and have learned from it that there is in our own population, a capacity for farming which is surpassed in no section of our country. I have thought a better agricultural school than this farm could not be found. I have before me also, that most valuable of all citizens, one of what are called the yeomanry of our country. A farmer, born and educated to his calling, and filled with determination to discharge his duty well. The virtues of a New England home gave tone and direction to his earliest impulses. The sharp and bracing air of his native hills nerved his arm, and knit his manly frame into that sturdy symmetry which his destiny demands. Amidst the conflicts and trials, amidst the joys and sports of the district school, he dlai the foundation of his knowledge, without advancing into that realm of letters which is beset with the snares of ambition, and is surrounded by all the temptations which the high mountains of society are sure to reveal. The great book of nature lies always open before him, and the relation which exists between the earth and its cultivator is the first lesson he learns from its pages. The capacity of his native soil becomes as familiar to his growing eye as the careworn form of his industrious father, from whom he learns year by year the practical business of agriculture. Among the animals of the farm he walks supreme and applies an unerring instinct to his estimate of their quality, and to the work of rendering them obedient to his will. He learns not only the art of tilling the earth, but the demands of the community in which he lives; and as he advances to that position which he is born to fill, he finds that the experience of his fathers, and the recorded trials of his neighbors, constitute that science which he is most eager

to learn. As he goes on in life, a busy world responds to his enquiries. The agricultural societies, which, in the best farming countries in the old world and the new, are founded for the benefit of all men like himself, pour forth their treasures at his feet. Subjected to his treatment, his ancestral acres unfold new riches at his hands, and he becomes, as he goes on in life, the impersonation of successful, economical, progressive agriculture. Will not this man, as a member of our society, serve as a teacher of the best truths of agricultural science? As he returns, day by day "warworn and weary" from his contest with nature, does he not accumulate practical wisdom, which, if imparted, will lighten the load man is forced to carry in every occupation in this toilsome world?

In estimating as I do, the value of the farmer as a teacher of agriculture, both in his private capacity and as an active member of a society, I would not be understood as opposed to agricultural schools and colleges. There is no royal road to learning in any of its branches. I have no doubt that a thorough agricultural education would save much misapplied time and labor and capital. I have no doubt that it would accelerate the progress of agriculture. I can easily imagine the effect it would have upon the farming interests of our own county, not only by the universal influence it would exercise, but by the stimulus it would give the leading and prominent members of the profession. It would make the good farmers better, and the poor ones good. And I can easily understand the advantages which those practical teachers of agriculture whom I have designated, might have derived from a thorough knowledge of the general principles taught in schools, not only by means of the actual acquirements and the increased wisdom given by culture, but also by means of that freedom from prejudice and that liberal spirit of enquiry and progress which lie at the foundation of all true success, and have enriched and elevated mankind by the patient toils of invention, and by the brilliant and startling achievements of discovery, and which education alone can give.

But then, gentlemen, comes the immense power of example. Why, I can take you to sections of your own county, where the quiet and unobtrusive efforts of a sagacious, industrious, prudent farmer have operated, like contagion upon all about

him, until he has become one of a community of thriving farmers. His well cultivated and fruitful fields, his carefully pruned orchards laden with fruit, his thrifty and profitable cattle, his well ordered buildings, his walls and fences a protection to his lands, all lie like an open book before his neighbors, so that "he who runs may read." His farm is a treatise on agriculture which every man can comprehend, and which all men delight to study. And as he presents himself with the fruits of his industry at the annual exhibition of this Society, he does more than books and essays, more than schools and colleges, to awaken the agricultural ambition, and to advance the farming interests of this community. He is every day teaching by example, and is illustrating, moreover, that view which I have taken of an agricultural society as one of the best of agricultural schools.

That this kind of teaching is not in vain, let us look over this little section of the country, which contains the farming interest represented by this society. Here in Essex county, we have every kind of industry to tempt us away from agriculture. A long line of sea-coast, with good harbors, has been made famous in the history of commerce by the enterprise of our citizens, who swept the remotest seas when navigation was in its infancy, and it has been made illustrious in the annals of our country by the patriotic daring which gave our navy a name among the nations of the earth. Upon the banks of our rivers and streams, the capital of the manufacturer has built as it were with a magician's wand, the thronged and busy palaces of his trade. The mechanic arts have peopled our villages and planted their shops along all our beautiful highways; and yet in this county enclosing four large cities, flourishing towns, busy villages, with every inducement to neglect the soil, our people have taken a high stand as intelligent and enterprising farmers. In the cultivation of root crops and vegetables we have not been surpassed, as the premiums awarded at the last horticultural exhibition in Boston will testify. The largest recorded amount of carrots upon an acre were raised in this very town where I am now speaking. Nowhere has the onion been cultivated with more skill and profit than on these fields directly about us. The application of sea-

manure of all descriptions to the soil, has been carried to the highest perfection along our coast. Some of the best experiments in improving cattle and sheep have been made upon our farms. In horticulture and pomology the names of Cabot, and Manning and Ives, are quoted as authority. Whoever has heard of the liberal and energetic President of our Society, knows that at Lynmere there is a growth of forest trees planted by his hand, which is almost unequalled as "a thing of beauty," and as a triumph of skill over a hard and sterile soil. I can show you on the shore of Beverly, the best arranged farm buildings that can be found perhaps in New England, taking them together; and you will find there as choice a collection of cows as can be seen anywhere, and I think decidedly the finest Suffolks and flock of Dorkings that can be found this side of the royal farm at Windsor, from whence they came. Not far from us, overlooking our very show ground is a greenhouse and grapery, which Mr. Paxton might envy, even among the costly edifices of his lordly master at Chatsworth. Our experiments in under-draining have become so extensive, that a manufactory of tiles has been established in the county. At a trial of mowing machines during the past summer, on my farm, six different inventions were brought upon the ground almost at a day's warning, and since that time, two others have been sent to me for introduction to our farmers who are becoming proverbial for their enterprise in the use of machinery. We have at our exhibition to-day, one of only two tedders that have been imported into this country—a machine which in the simple matter of spreading hay, is of inestimable value to every farmer who would secure this important crop thoroughly, rapidly and economically.

I will not say that all these agricultural improvements, these indications of an agricultural ambition among us, have been brought about by our society—but I am proud to say there is not one of them which has not been encouraged by its liberality. The competition it has excited in mowing machines alone, has aided in a very great degree, the development of an instrument of labor from one degree of perfection to another, until our farmers have the prospect before them of being able to resign the scythe with all its hard toil, and with the constantly

increasing expense attending its use. And will our horticulturists, our breeders of cattle, our reclaimers of waste lands, our cultivators of field crops say that they have not been stimulated by our society and enlightened by its publications? For myself, I believe it has become an institution which our farmers would not resign. I know that the associations which cluster about it, bringing to our minds as they do the pleasant memories of our annual intercourse with each other, and connected as they are with the industrial pursuits of our wives and daughters, whose handiwork has given a peculiar charm to our exhibitions, are dear to us all. I value the knowledge it has accumulated, gathered together as it has been with the products of our own soil, as of priceless value to every enterprising and enquiring Essex county farmer.

I consider therefore this collection of practical knowledge, as one of the highest duties our society has to perform. I would have it continued by every means within our power, consistent with prudence and economy. We may rely upon it, that the general elevation of agriculture here, will be more promoted by this, than by any endowment of schools and colleges; for while these develop the faculties of the few, the efforts and influences of our society may be made to reach the humblest farmer who is striving to make the most of his single talent. I am confident that by a faithful discharge of this duty, we shall find our whole farming community advancing in intelligence and prosperity, and developing those resources which lie hidden in our soil. And I am encouraged to believe this, when I look abroad and see what other similiar associations have done, and what they indicate. In England, where agriculture has reached a degree of perfection unknown elsewhere, the greatest attention is paid to agricultural societies. There are but five agricultural colleges, and even these are buried in comparative obscurity, while the meetings of the Royal Agricultural Society are thronged by an interested crowd of husbandmen, who have felt the effects of this noble institution upon all their interests. In 1857, the number of visitors to the show at Salisbury amounted to over thirty-five thousand, all learners in a school which first roused the English mind to the true value of artificial manures, to the necessity of

under-drainage, to the importance of a thorough and careful investigation of the best method of feeding animals, and to the most successful modes of cultivation. It is impossible for me to lay before you all that this society has done to remove the prejudices and awaken the minds of the English farmers, both by its publications, and by its exhibitions of machinery which has been actually used upon the farm, of cattle which have been improved beyond a doubt in England, of products which high farming has brought forth upon that very soil. Let me tell you that one great era in English agriculture, dates from the opening of this society in 1839, when, as has been truly said, "farmers began to be familiarized with men of science, and men of science learned not to despise agricultural experience." It was an era also in our own agriculture, when the establishment of societies made farmers familiar with each other, and opened their minds to the importance of their occupation.

In the midst of all the higher duties which devolve upon us, let us not forget those humbler obligations which really lie at the foundation of all our work, and measure the amount of influence we are to exert. It belongs to us to cherish by every means in our power, a fraternity of feeling among our farmers. The love of land which we inherited from our Anglo-Saxon progenitors, is always attended by the desire for isolation, strong reliance upon self and exclusive devotion to one's family, which have always characterized that extraordinary race. Whatever tends to counteract an extravagant development of these qualities, binds society together with new bonds. The heart of man never expands until it feels the full force of the fact that it is but one of a community, and is warmed by the quick sympathies of neighbors and friends. The farmer living on his own land, has a sense of independence, which, if carried too far, might destroy all those ties which bind society together. The excess of individuality is his imminent danger. Prejudice and a fond adherence to old ways surround him on every side, with constant tendency to make his mind obtuse. In the calm and imperturbable spirit which threatens to encase him in an armour of steel, what a contrast does he form to the impulsive and excitable groups which are swayed to and fro by every

"wind of doctrine" that reaches their work-shops, and whirls them along with resistless current. In avoiding this extreme, he is threatened by another, from which associated labor alone can save him. It is the agricultural society which teaches him that his fellow-men have like passions and interests with his own. It is the agricultural society which extends his sympathies, and rouses his ambition, and enlarges his mind, and arms him against those foes which beset him behind and before to destroy himself and degrade his calling. The blood of our fathers makes us careful, prudent, successful farmers; the associations which they founded will make us intelligent, liberal and progressive ones.

In this respect every form of associated agricultural effort is of the highest importance. A town that sustains a farmer's club is sure to have its due proportion of good farmers. What invaluable allies to a county society they might be made! Local fairs cannot be too highly estimated, both as a means of bringing farmers together, and also as furnishing an opportunity for purchase, sale and interchange; and I trust the day is not far distant when the judicious recommendation made to you by your President, will be so far carried out, as to result in the establishment of monthly, if not weekly fairs, in some convenient location in the county. Let us in every way create a community of feeling here, a sort of *esprit du corps*, a desire to talk with each other, a desire to trade with each other, a determination to cultivate our own minds and supply our own markets, and Essex county will soon become as distinguished for its agriculture, as it now is for its wealth and enterprise in commerce, manufactures and the mechanic arts.

Above all things, it is our duty to be in the ordinary term of rather an uneasy age, sufficiently progressive. This is a dangerous word I know, inasmuch as progress too often means an entire accordance with our own opinions. There is a restless, short-sighted spirit, which we are very apt to dignify with the name of progress, but which is nothing more than a superficial love of excitement, novelty and change. Agriculture tolerates no such handmaid as this. And I cannot too warmly congratulate this Society that it has escaped its influences. When I consider the alacrity with which every invention and every

new branch of agriculture have been recognized, the liberal rewards which have been offered for all improvements, the generous consideration which has been shown careful breeders of our most valuable farm animals and the attention which has been aroused by the published essays of the society, I cannot but look with pride upon an association which seems blessed with perpetual youth, tempered with the wisdom and judgment of mature manhood. In its devotion to the cause of agriculture, it has kept pace with the best intelligence of the age, and has placed itself on an enduring foundation in the minds of the farming community. An agricultural society, which, while too many have yielded, and fatally too, to a passion which leaves no room for the homely fruits of honest farming, has discriminated between the different uses of the animal kingdom, deserves all praise. It has a due regard for all the interests which come under its cognizance. One of its great objects is the encouragement of breeding valuable animals for the profit of the farmer and for the advantage of the community, whether it be for the dairy, for draught, or for driving. In all this, it is observant of the most important interests submitted to it, and is as truly progressive in its recognition of all classes of animals as it is in the reward it offers the various branches of farming. It is the legitimate use of animals, and the legitimate growth of crops with which it is concerned. Our society offers liberal premiums for bulls—does it follow that we must have a bull-fight at every annual exhibition? We all value the horse and have encouraged the breeding of this important animal with ample rewards—will the most intelligent judges among us say that they require the trials of the track, in order to make up their decisions? All these things have their place, but it is not exactly at a farmers' exhibitino, or as part of a society, which should be actuated by an honest feeling of competition, based upon a love of excellence and a desire to advance an honorable and useful calling, and which has no more connection with the ardor of the race-course, than submitting the seed to the uncertain influences of the earth has with the hazards of the faro bank and the dice box. The two occupations cannot live together, neither is it necessary that they should for the benefit of any branch of industry. Not that I would

have our society discontinue the liberal encouragement it has always extended to the development of the American trotting horse, than which no animal is wiser, more enduring and patient, more courageous, nor more defiant of all obstacles. But as it values its own existence, as it regards the dignity of that occupation to which it is devoted, I trust it will never substitute a dangerous excitement for that healthy exhilaration which the farmer feels as he surveys the creditable products of agricultural industry and skill. There is enough in our exhibitions to occupy the attention of all who come to learn, enough to gratify the curiosity of all who come as spectators, enough to arrest the thoughts of all who come to witness the progress of that business upon which the subsistence of society depends. Anything beyond this is inappropriate. And I am constrained to believe that a desire to introduce amusements among us, which might for a time eclipse our more important duties, arises from an inability to comprehend the true object of our association. What do you suppose a solid Yorkshire man would say, were he called away from handling Lord Feversham's prize Short Horn bull, to witness a trial of speed between Mr. Tenbroeck's Prior, and the slashing mare Blink Bonny. Our trans-Atlantic neighbors know better than this. They breed thorough breeds, in almost every race of animals domesticated by man, they understand the glowing pleasures of the chase, they know all about the hearty joys, and the fascinating chances of the race course, the Derby, Epsom, Newmarket, are all entered in their calendar—but when the steam plough is brought into the field, when the earliest maturity of beef and mutton is to be considered, when the best methods of producing breeds of animals adapted to specific purposes are to be investigated, when cultivation and crops are to be examined, the Englishman closes his sporting book, and becomes an inquiring, progressive, successful farmer. And will any one say that the Englishman does not pay sufficient attention to the breeding of horses? Why, it has become a science with him, taught and developed not by converting his fair grounds into the turf, but by that care and intelligence which always receive their reward, and which may be imitated by us to our honor and profit. Let us then as a society encourage still the attention our farmers are giving these useful ani-

mals, and if any man doubts the benefit to be derived from it, let him witness the extraordinary success one of our own Essex farmers has met with by the exercise of that judgment and skill which have enabled him to produce a Childers, and to fill his stables with a collection of colts unequaled as a whole, from which one yearling animal has been sold at a price greater than was ever before obtained in New England. Let us do this, and I think we shall be progressive enough for the most ardent lover of horse flesh in the country; let us continue the encouragement we have always offered the legitimate improvements of agriculture, and I think we shall be progressive enough for the most zealous farmer in the country.

And now, gentlemen, let me say a word with regard to the opportunities we possess for discharging these duties to which I have referred. The law of consequences and compensation which controls the life of each individual, and, under the guidance of Providence, prevents our being the mere creatures of accident, directs also the course of associations of men, and furnishes them their opportunity for good or evil. By a long and honorable career, our society has secured a position which by elevating its influence, multiplies its chances for effort. I believe you will all agree that it has won the respect of the farmers of our county, and of the community generally. It has been deemed worthy of the most liberal consideration of many of our best citizens. A valuable library has in this way been collected which furnishes constant opportunity for reference and information. And a large agricultural interest has learned to be stimulated by our rewards and instructed by our advice and counsel.

But above all, our association has been deemed a worthy recipient of one of the best farms in our county, a legacy bequeathed to us for the promotion of the science of agriculture. I think I do not estimate this bequest from Dr. Treadwell too highly, when I look upon it not only as a compliment to the reputation we have won as a society, but as by far the most valuable means we possess for carrying on the work we have begun. A farm for experiment and observation—how much is involved in this design! Under the care of an intelligent farmer, and conducted by a competent committee, the

accumulation of facts which may be made there must be full of interest and instruction. We may learn within our own borders if we will, the changes of the seasons from year to year, the chances of crops in our latitude, the cultivation best adapted to our soil, the effects of manures, the expense and benefits of drainage, the relative value of products, without incurring that expenditure of time and money which renders experimental farming so hazardous and so generally unprofitable. I trust this golden opportunity will not be wasted; and I most earnestly urge upon you the adoption of a system which shall render the records of the Treadwell farm an addition to our agricultural literature, which shall be creditable to ourselves and profitable to those, who, coming after us, assume our duties and inherit our opportunities.

In conclusion, we should not forget the thousand associations which throng upon us as we come up to our annual festival. The picture of home, of fond pride and warm attachments, is constantly before us. The fabric wrought at the domestic fireside, has enwoven through all its fibres the simple taste which designed, and the simple virtues which attended its construction. Not a plant or an animal adorns your exhibition that has not been an object of human care, appealing to man's ingenuity for its culture, and to man's kindness for protection. They tell of spring, struggling to come forth, touching the earth with the first faint soft hues of life—of summer, warming and cherishing to the richest exuberance—of autumn, dashing its gorgeous colors with bold and lavish hand over the landscape, and crowning the laborer with a rich reward—of winter, whose night season of repose shuts down over the earth, and binds with domestic ties man with his flocks and herds into one great family of mutual dependence, filled with faith and trust. They remind us of those possessions which appeal to our kindest impulses, and whose memory is always ready to cheer us through the dull hours of absence and trial. Have you never heard from the care-worn and grey-haired man, the story of that tree which cast its shadow upon the roof of his native cottage, and the music of whose branches he has always heard when far away amidst the din of busy life? Have you never experienced the confidence and trust and the calm content which

the possession of the soil ought to bring? To those whose daily toil is devoted to the business of agriculture, the beauties of the farm may be hidden beneath the weight of care it brings; but above all, rises the genius of the occupation to find the ready response in man's nature, until the yoke seems to grow "light and easy." And when the temptations of an active world have drawn man away from his paternal acres into the severer labors of the forum or the market place, when he is tossed upon the stormy sea, or defies all danger in the battles of his country, his thoughts by day and his dreams by night carry him to those scenes of his youth in which the valley and hill, the pasture and woodland, the dewy morning and the quiet evening, the daily events of farm-life, prepared for his wearied soul a fairy land in which he can always find peace and repose.

> "I flew to the pleasant fields traversed so oft,
> In life's morning march, when my bosom was young,
> I heard my own mountain goats bleating aloft,
> And knew the sweet strain that the corn-reaper sung."

This is not the poetry of farming life, but it is the reality which outlasts all fleeting events, which remains when the burthens of the day are all forgotten, which never faded from the memory of the great statesman, who, when his eye was growing dim at the approach of death, would have his last look linger upon those fields which he learned to love, before honors and ambition had besieged his fretted soul. It is a reality which dwells upon my mind when I urge you to cherish and develop the agriculture of your county, as the basis of much of its prosperity and happiness, and as the parent of its most loyal and devoted children. It is a reality which you all possess, which your occupation has given, and which God grant no power on earth can ever take away.

REMARKS OF HON. EDWARD EVERETT.

The Hon. Edward Everett being present as an invited guest at the dinner of the society, was introduced to the company by Mr. Fay, the President, in a few happy remarks, alluding to the pleasure derived from his former visit as Governor of the Commonwealth, to the Show of the society at Danvers in 1836. As soon as the very great applause and cheering which greeted Mr. Everett as he rose, had subsided, he said :—

MR. PRESIDENT, LADIES AND GENTLEMEN—FELLOW CITIZENS :

I am greatly indebted to you for the most kind and hospitable manner in which you have welcomed the announcement of my name. It would not be easy for me to do justice to the feelings which I experience at this moment, when rising after such a reception, to address you. You have truly stated that twenty-two years have now elapsed since I had the pleas- of meeting my fellow citizens of the county of Essex, on an occasion like this,—in this place. Twenty-two years, sir—a very considerable portion of the life of man. It is not without emotion, that I have looked around the grounds, that I look around these tables, and behold so few of those present this day who tendered me a cordial and hospitable welcome on that occasion. I miss many a respected, many an honored person that I would gladly have met to-day. Above all, sir, I call to mind that venerated patriot, Gideon Foster, whose presence on that occasion gave it so much of its dignity, and of its interest, whose venerable form seemed to be a connecting link that united this generation with the fathers of the revolution. Sir, he has passed away, and with him have passed away many younger than he indeed, but who then stood in the front rank of active life. I believe I should speak the truth, if I should say that of those gathered together on that occasion, more are resting beneath the sod of the village churchyard than are alive to meet us to-day. But sir, though they have gone, though men pass away, their labors, the fruit of their labors, remains. The work of man, the work of his hands, of his mind, his work in the field, in the factory, on the shore, on the sea, his

intellectual work, sir, the word fitly spoken, the written page; and above all the virtuous deed,—in every department of life, these make the man, and these remain. It is not the corporeal frame, it is not the vital action; it is the work of the intellectual and the immortal principle within. The individual has passed away; the good men are gone, but the fruit of what they counselled, and what they thought, and what they did, remains with us; and if, sir, I am inclined on this occasion to yield to some melancholy feelings in looking around and missing so many that I would gladly have met here, I would rather rejoice—I console myself, that the memories and the influence of the good men remain.

Sir, the ranks are not only filled up, but are wonderfully recruited. Comparing the year 1858 with the year 1836, when I had the honor of meeting my fellow citizens of Essex county at this place,—comparing these two years together, we shall make out the picture of a progress not easy to be paralleled in any other country, or in any similar period in the history of the world. I might, perhaps, with pertinence, apply this remark to the progress of agriculture; and did intend, my friends, to say a few words on that subject; but the worthy gentleman on my right, (Dr. Loring,) who has entertained and instructed us in another place, and your excellent President, who has just spoken to you in such a practical manner on several interesting agricultural topics, make it superfluous for me to say anything on that subject. I will rather, sir, following the train of reflection which you have suggested to me, in recalling my former visit to this place—attempt, in some other respects, to point out the progress made by the country in these two and twenty years.

In the first place, in the mere point of population. Have you considered, sir, that in these twenty-two years the population of these United States has nearly doubled? Have you reflected upon the significance of the facts contained in these few words? The population has nearly doubled. Another America has sprung into existence, not only to take the place of those who have passed from the scene, but to add more than ten millions to the aggregate. Sir, I under-state these figures. The population in 1840,—according to the census of that year, which was the first census after my first visit to this place,—amounted

in round numbers, to seventeen millions. In 1850, the population, in round numbers, amounted to twenty-three millions; and in 1860, by the best estimates which we can make, it will be little if any thing less than thirty millions. Three millions of these may be taken as emigrants, to whom our vast domain has furnished a refuge from the destitutions and oppressions of Europe; and the other ten millions are natives of the soil, bone of our bone, flesh of our flesh, fellow citizens, brethren. Ten millions of brethren added to the population! Mr. President, what achievements of diplomacy or war, what conquests of hostile provinces, what annexations of foreign islands, can be compared to ten millions of fellow citizens, natives of the soil, added to the population,—three times as many as the whole population of America on that morning when Gideon Foster went with the men of Danvers to Lexington and Concord.

Then, sir, the great interests of social life that concern your farmers as much as they do the navigator or the merchant or the man of any profession,—railroad communication, for example. Why sir, in 1836, the communications of this State westward did not extend beyond Worcester. I attended the opening of the railroad from Worcester to Springfield, in 1839, and it must have been two or three years later that the communication was carried still further forward to Albany. I suppose that at the time of my former visit to this place, under the auspices of the Essex Agricultural Society, there could not have been fifteen hundred miles of railroad in the whole United States; and now there are 26,000 miles of such communication. I know that many of these enterprises, considered as investments of property, have proved disastrous to those engaged in them; but what vast results to all the industrious classes of community have accrued, often from the most unprofitable of those enterprises.

Then sir, another great phenomenon of these two-and-twenty years,—the navigation of the ocean by steam,—wholly the growth of the period that has intervened since I last had the honor of addressing my fellow citizens of Essex County at Danvers. I find much matter for sober reflection, when I contemplate the history of this navigation of the ocean by steam. It seems to me to illustrate in the most striking manner the slow steps by which a great improvement moves forward for

generations, for ages, from the first germ, and then, when the hour has come, the rapidity with which it rushes to its final consummation. Sir, Providence offered this great problem of navigating the ocean by steam to almost every civilized nation on the globe. As long ago as the year 1543 there was a sea captain in Spain who constructed a steam vessel, and in the presence of the Emperor Charles V, in the harbor of Barcelona, exhibited a vessel of two hundred tons, propelled by an engine, the construction of which was kept a secret. According to documents describing the occurrence, which were preserved in the archives of Simancas, it was a monster cauldron or boiler of water, and there were two movable wheels on the outside of the vessel. The Emperor was satisfied with its operation, but the Treasurer of the kingdom made great objections to its introduction. The engine seemed at once to have reached a point, beyond which in some respects it has not been carried at the present day. "It was very complicated, very expensive, and the boiler was very apt to explode." No encouragement was given to the enterprise. Spain was not ripe for it. The age was not ripe for it. The unfortunate contriver, Blasco de Garay, wearied and disgusted with the want of patronage, took the engine out of the vessel, allowed the ship to rot in the arsenal, and the secret of the machine was buried in his grave. This was the result in 1543.

A century passes away, and Providence offers the same problem to be solved by France; and in reference to this we have a most extraordinary account from a source equally extraordinary,—a celebrated female in the middle of that century, equally renowned for her beauty, for her immoralities, for her misfortunes, and for her longevity,—for she is stated by some writers to have lived to be 134 years of age,—Marion de Lorne. We have all read of her in the modern French writings of fiction. There is a letter written by this lady to one of her admirers in 1641, which contains these most astonishing details. She is giving an account of a visit with the Marquis of Worcester, the English nobleman so well-known in the history of invention, to the Bicetre, the famous mad-house in Paris. She was crossing the court-yard of that dismal establishment, almost petrified, she says, with terror, clinging to her companion for safe-

ty, when she saw a frightful face through the bars of the building, and heard a voice, crying, "I am not mad; I am not mad; I have made a discovery which will enrich the kingdom that shall adopt it." She asked her guide what the man meant. He shrugged his shoulders and laughed and said, "Oh, not much; its something about the power of steam." Upon this the lady laughed also,—that a man should go mad upon such a frivolous subject as that; and the guide went on to tell her that this poor Solomon de Caus came from Normandy four years before, to exhibit to the King an invention by which, by the power of steam, you could move a carriage, you could navigate the ocean,—in short, if you could believe him, said the keeper, there was nothing that you could not do by the power of steam. Well now, Mr. President, what followed upon this? Cardinal Richelieu, who was France embodied, wielded the whole power of the kingdom, and was in truth a most sagacious and enlightened man, as worldly wisdom goes,—the Cardinal would not hear a word from the projector, and turned his back upon him. Solomon de Caus was a persevering man, and followed Cardinal Richelieu from place to place, exhibiting his drawings, and the Cardinal getting tired of him, sent him to the mad-house. There he was, and there he was seen. The guide went on to say that his mind is so full of the subject that he has written a book, and, said he, "here is a copy of it, called Moving Powers." The Marquis of Worcester was very much struck with the appearance of De Caus, and was much interested with the book, and incorporated some portions of it into his celebrated work, "The Century of Inventions."

But you see in this recital how France proved herself in 1651, as Spain had proved herself in 1543, unable to take up and wield this mortal thunderbolt. No, sir; the problem of navigating the ocean by steam was reserved for the Anglo-Saxon, and from the time of which I am now speaking some of the best mechanical skill of England was turned towards the subject of the motive power steam. Experiment after experiment was made, sometimes with no success and sometimes with partial success, till some time after the middle of the last century. So late as that, and though the germs of the invention had been floating about in the minds of ingenious men for more than two hun-

dred years, the steam engine,—mark you, I do not say the navigation of the ocean by steam,—the steam engine, that scarcely inanimate Titan, that living, burning mechanism, was brought nearly to its perfection by James Watt. James Watt took out his patent in 1769, that great year in which Wellington and Napoleon were born; and ages after the names of Austerlitz and Waterloo shall perish from the memory of man, the myriad hosts of intelligent labor, marshalled by the fiery champions that James Watt has placed in the field, shall gain their bloodless triumphs, not for the destruction but the service of mankind. All hail, then, I say, to the mute, indefatigable giant. In the depths of darksome mines, along the pathways of travel and of trade, and on the mountain wave, drag, urge, heave, toil, for the service of man. No fatigue shall palsy thy Herculean arm. No trampled hosts shall writhe beneath thine iron feet. No widow's heart shall pay bleeding tribute for thy beneficent victories.

Sir, England invented the steam engine, but it seemed as if, by the will of Providence, she could not go any farther in its application. Queen of the seas, as she deemed herself, she could not apply this invention, which she had brought almost to perfection, to the navigation of the ocean. That part of the problem was reserved for the other part of the Anglo-Saxon race—the branch situated in a region—this Western hemisphere—whose territory is traversed by some of the noblest rivers that belt the surface of the globe; and is separated by the world-wide ocean from the Eastern hemispheres. It is amazing, sir, to consider how, with the dawn of the revolution, the thoughts of men in this country were turned to the application of steam to navigation. Rumsey, Fitch, Evans, at that early period, made their experiments. One of them attracted the notice of him whom nothing escaped that belonged to the welfare of his country—I mean Washington; and we have a certificate from him, expressing the satisfaction with which he had witnessed the experiments of Rumsey. But for a time they proved unsuccessful, and I have thought it almost a providential appointment, that the ocean was not navigated by steam in the Revolutionary age. I have sometimes thought that the enormous preponderance of British capital and of

British mechanical skill at that time, if the ocean had been navigated by steam, would have put into her possession facilities for blockading our ports and transporting armies to our coasts, which might have had a disastrous effect upon the result of the whole contest.

At the close of the revolution and on the establishment of a settled order of things in Independent America, it plainly appeared that the hour had come and the man was there. In the year 1799 the thought had become matured in the mind of Fulton. He had found a liberal and enlightened coadjutor, Chancellor Livingston, and in that year, 1799, they came to the Legislature of New York for an act of incorporation. I am sorry to say that America at that moment could not boast of much keener perception of the nature of this great discovery than France and Spain had done before her. Chancellor Livingston tells us, that after he had thrown his petition into the Legislature, and the act which they desired to be passed was drafted, the young men of the assembly, when tired with the 'graver matters of the law,' used to call up the steam bill, that they might have a little fun out of it. Young America on that occasion did not show himself so much wiser than his seniors. But nothing daunted, nothing discouraged, by the coldness with which the project was received—nothing discouraged with the imperfect success of the first experiments, they persevered, and twenty years had not passed away before the steamers were found upon our sounds, upon our lakes, upon our great rivers, and at the time when such a thing was known only by hear-say in Europe. This application of steam was all that was of immediate pressing necessity in this country; and twenty years more passed before English capital was applied to the navigation of the ocean—that part of its application in which England was so much interested, as giving her access to the commercial stores of the western world.

I could not, when the news of the laying of the Atlantic telegraph reached us—but reflect what would have been the emotions of Fulton, and of Franklin, if they could have stood upon the quarter-deck of the Niagara, as she was lashed to the Agamemnon, and seen the commencement of the electric communication, which, in the results of their joint discoveries, had bound the two worlds together.

Now, sir, to go back to the point from which I started. This great development of steam, its application to the navigation of the ocean, has taken place since I had the honor twenty-two years ago of meeting my fellow-citizens of Essex county at this place. There are some other thoughts to which I should like to allude, if the time were not passing so rapidly away. There is the electric telegraph itself, which was known but as a theory twenty-two years ago. It now pervades not only every portion of our own territory, but of the civilized world. And may we not refer, sir, with satisfaction to the part that has been taken in this brightest, this most wonderful application of the forces of material nature to the purposes of intellectual communication, by such men as Franklin, as Morse, as Field ; and may I not add, that modest engineer, whose name I have the honor to bear, whose practical skill has been so conspicuous in the details of the operation ?

I might, sir,—to come nearer home—I might speak of other things in which vast progress has been made in these twenty-two years in our own immediate Commonwealth and community. There is the great subject of education. In 1836, the year that I had the honor to visit this place before, the Board of Education of Massachusetts was established,—a measure in which I had some humble co-operation. I need not tell you, my friends, for many of you have personal knowledge, how the standard of education has been elevated and every department of it improved through the operations of the Board and its intelligent secretaries.

I might speak, sir, of the progress of agriculture, but that topic has been too ably treated by my friend on my right, to make it necessary to enter into detail, were I otherwise able to do it. I may however remind you that a citizen of Essex was employed, on my own recommendation, to make that survey of the agriculture in the different counties which has been the means of diffusing so much valuable information. (I allude to Mr. Colman). But, sir, all is not done. There is a great deal of work remaining. There is no danger that we shall anticipate posterity. We shall leave enough for them to do. We are human, sir. There are defects in our social system that require to be supplied. There are evils that need to be cured, and there

are existing beneficent institutions that are capable of being carried much further. There is time enough for all these purposes and work enough to fill it. The time of individual man is limited. He has but a span, but the years of Providence are endless. I scarce know, sir, that I ought in connection with this serious sentiment to refer to the light catch which we used to hear in our youthful days. I was young once, sir. I remember something like this :—

> "A time twice as long as the siege of old Troy
> To win a fair maid I my time did employ,
> But still as I pressed her the day for to set,
> She constantly answered—"There's time enough yet."

Now sir, I don't go in for that. I think that in some things, you may wait a little too long; and if she cared anything about him she ought not to have made him wait twenty years. But, sir, there is time enough yet to make your schools far better than they are now; there is time enough to improve your farming; there is time enough to improve your legislation; there is time enough to make most important progress in all those great desirable objects of life for which the societies of men are brought and kept together. The generation that has passed away, as I think you perceive from the slight sketch that I have attempted, has not wholly neglected its duty; and let us hope that those that come after will be equally faithful in their day and generation.

I thank you, ladies and gentlemen, for the kind attention you have given me, and I desire to tender to each and every one of you my most heartfelt wishes for your health and happiness.

After the remarks of Mr. Everett, the following stanzas written by FITCH POOLE, for the occasion, were read by ARTHUR A. PUTNAM, of Danvers :—

SECOND DREAM OF GILES COREY.

A BALLAD OF 1692.

Giles Corey had a second Dream,
  As in the Gaol he lay—
'Twas on that sad and doleful night
  Before the fatal day.

The fleeting Time was hastening on ;
  His life was fading fast :
Wild Phantoms gathered round his couch—
  This Vision was his last.

His Goodwyfe saw his troubled sleep ;
  She had a heavy heart ;
She knew the day had come, at last,
  When they must surely part.

On Gallows Hill, for whichcraft arts,
  They were condemned to die :
Giles Corey to be pressed to death,
  His wyfe to hang on high.

Giles Corey woke and told his dream
  Unto his loving Wyfe ;
And, while he spake, the moments ran,
  And flowed the tide of life.

He saw the men of future years—
  The humble and the great,—
Of ages long beyond his time——
  'Twas *Nineteen Fifty-Eight !* (1958.)

"How passing strange it seemed to me!"
  Giles Corey spake aloud,
"The scenes and men of distant times
  Before my vision crowd !

I found myself with faces strange
  In throngs assembled there ;
It seemed an Agricultural Show—
  A Farmer's Cattle Fair.

I dreamed I saw the moving crowds—
  The Beaux and Country bumpkins ;
The luscious fruits, and fragrant flowers,
  And monstrous mammoth Pumpkins.

They had a famous Plowing Match,
  Without e'er Horse or Ox ;
No man was seen to hold the Plow,
  But driver on a box.

He sat upon a queer Machine—
  It went by Fire and Steam ;
The land was plowed full three feet deep—
  Was ever such a Team !

It pulverized the deep green sward ;
  It gathered up the Rocks :
And scattered wide the Trees and Roots
  With Herculean knocks.

I gazed with wonder at the Work
  Upon the measured Plot :
Just Fifteen minutes served to plow
  This Thirteen acre lot !

They sent again another Team ;
  I thought the thing was haunted,—
In just ten minutes more I saw
  This self same lot was planted !

They had machines of every kind
  For reaping and for sowing;
The labor all was done by steam
  For thrashing and for mowing.

The sterile lands by Chemique Art.
  Were made productive soils ;
And rich as Western Prairie lands
  Became the barren Knolls."

"Stop, Stop, Giles Corey," spake his spouse,
  "Your tale is all a lie ;
How can you speak of things so false,
  When just about to die ?"

"My dearest Dame, 'tis but a Dream ;
  And, if you quiet wait,
I'll finish soon this wonderous tale
  Of marvels stranger yet.

Who knows what things may come about
  In centuries yet to be ?
These things, which so astonish you,
  Are stranger yet to me.

Their growing grain was made to yield,
  By strange electric forces,
An ample store of wholesome food
  For people and their horses.

The trees grew up to lofty height,
  And bore of fruits such plenty—
As much in five short fleeting years
  As ours produce in twenty.

Disease would often blast their hopes :
  They missed the Locust's shade ;
And mourned the lost Potato root,
  And buttonwoods decayed.

They told me of the Elm Tree blight,
  How dark the leaves were spotted ;
And reasoned sagely of the cause
  Why all the Onions rotted."

Here quickly rose Dame Corey's voice :—
  "A fig for their opinions !
But it must be a dreadful thing
  To lose a bed of *inyons !*"

They told a tale of silent speech
  Through magic copper wires ;
All through the earth, and air, and sea,
  By strange electric fires.

They tell what happened yesterday,
  Away beyond the main ;
Of incidents in foreign States—
  In Russia and in Spain.

The Russians chose a President
  To rule that mighty nation ;
The Spanish Cortes passed a law
  Of perfect Toleration.

To-day, a Telegram came on
  And brought the latest news ;
That Turkish soil was held by Greeks—
  Jerusalem by Jews.

St. Peter's Church, at Rome, they said,
  (The act was purely national,)
Was consecrated o'er again—
  Its worship, Congregational !

I heard of England's falling pride ;
  Her Statesmen broken hearted ;
Rebellion in her Colonies ;
  Her naval power departed.

They spake of fields of bloody strife—
  Of nations the arena ;
And told sad tales of Britain's King
  Exiled at St. Helena !

I heard how wide these States have spread,
  From Arctic to Cape Horn;
While Congress meets at Mexico,
  And sits from night to morn.—

How Alva was our President—
  A native of Mosquito—
And Don Santino was our Vice,—
  His home, I think, at Quito.

I marvelled much these things to hear—
  To me 'twas quite perplexing;
They told me that it came about
  By virtue of Annexing.

They spoke in terms of lofty praise
  Of one Illustrious Son,
The Father of this Western World—
  His name was—WASHINGTON.

This Family of mighty States
  Thus live in close communion,
Cemented by his honored Name—
  His legacy of UNION.

These people told of march of Mind
  Of news among the Stars;
How Neptune's moons were twice as big
  As our young brother Mars.

Our Solar System spread abroad
  With distant Planet cousins,
And such a host of Asteroids
  You'll count them up by dozens.

Their Savans see the Double Stars,
  (Like topers in their cups;)
The Dog-star has a litter large
  Of Planetary Pups.

They've brought the starry vault so near,
  With all its nebulous gleam,
That what is called the Milky Way
  Seems quite as thick as Cream.

Said Goodwyfe Corey, "Why don't they
  To some advantage turn it?
Just show to me this Creamy Way,
  And see how quick I'll churn it."

One night I saw the full orbed moon
  Display her silvery face;
I used their Telescopic tube
  And saw the Lunar race.

Their forms were strange enough to me,
  So shapeless and so droll:—
These beings of the highest grade
  To hold a Lunar soul!

'Twas queer to me to see them fly
  By aid of Dorsal fins;
The Solar rays so bright, they wore
  Their eyes beneath their chins.

So desolate their rough domain—
  No fragrant pinks or roses,
Geraniums nor Mignionette—
  They had no need of noses.

The way they cultivate the Moon
  Is surely not alarming;
But this is not the time or place
  To criticise *their* Farming.

I asked a Doctor of this Art—
  He gave me strict attention,
And said the Drug that most was used
  Was that one called—Prevention.

He said Consumption now was rare,
  No more a deadly foe;
Small Pox, that fatal scourge of earth,
  Was banished long ago.

The yellow fever, too, is gone,
  Which once destroyed such numbers;
And Cholera's confined to those
  Who swallow green Cucumbers.

An Instrument was shown to me
  Of Microscopic power;
The wonders of this thing to tell
  Would take me quite an hour.

I took some mites from off a fig
  And placed them to the lens;
They grew in size so wondrous large
  They seemed as big as hens.

On one of these I saw a bug—
  Of horse-fly size or larger—
And on *his* back a tiny mote,
  Like fly upon a charger.

The power increased, this mote enlarged,
  As you may well suppose;
For, on my word, I clearly saw
  A pimple on its nose!

Around this pimple, plain were seen
  A throng of hungry eaters—
A greedy, microscopic crew
  Of bandy-legged mosquitoes!

I heard a preacher seek to prove,
  By records in the stones,
Of races long before our own
  In petrifactive bones;

Of Lizards of enormous size,
  With scales upon their backs;
And traces in the red sand-stone
  Of monstrous Turkey tracks.

I pointed him to Genesis,
  For here I knew I had him;
He still went on to prove the earth
  Was older far than Adam.

He spake of Sermons in the Rocks—
  I then was sorely vexed;
I swore an oath, and snatched a stone
  To give the man a text.

His gentle words appeased my wrath;
  He spake of ancient errors—
Of glimpses of the Spirit World,
  And Death Disarmed of Terrors.

He said the light of Wisdom shone
  In this creative plan;
And God had thus this world prepared
  A fit abode for Man."

"How ill at ease," quoth Corey's Dame,
  "With their upstart Geologies,
Thus ruthlessly to overthrow
  Our long revered Theologies!

What awful inroads Time doth make,
  What havoc with our Creeds!
Such small esteem for form of words;
  What preference for Deeds!"

Here Goodman Corey heard a sound—
  A loud and noisy banging;
The Sheriff and his men had come
  To call them to the Hanging!

The Dream half told, they joined the throng;
  Their hearts were firm, their voices still.
Together slept this aged pair,
  That night on Gallows Hill.

THE TREADWELL FARM.

By a vote of the society, at its last annual meeting, it was made the duty of the secretary to prepare a memoir of its transactions respecting the Treadwell farm, to be published in this volume. This farm, it is well known, was devised to the society for certain specific purposes, by Dr. John G. Treadwell, late of Salem, after the decease of his mother. At a meeting of the Trustees, November 17th, 1856, it was voted that the President and Secretary be a committee to confer with the executors of the will of the late Dr. Treadwell, in relation to the bequest of the farm in Topsfield to the society. At a subsequent meeting, June 9th, 1857, Mr. Fay, the President, made a verbal report that the mother of Dr. Treadwell would retain her interest in the farm during her life, and that no steps were necessary to be taken by the society, at present, in reference to the same.

At a special meeting of the Trustees, February 11th, 1858, the President stated that for the sake of greater definiteness, he had committed to writing the object of the meeting and the plans which he had to propose in reference to it. He accordingly proceeded to read a paper, of which the following is a copy :—

The object of this meeting is for the purpose of considering what course the Board will recommend to be pursued in relation to the bequest of the late Dr. Treadwell of a farm in Topsfield to the Essex Agricultural Society, to which the society is now entitled to come into possession under the terms of the bequest, owing to the decease of Mrs. Treadwell, the mother of the testator, of which it has been advised by the following note from his executors :

SALEM, Feb. 5, 1858.

Gentlemen of the Essex Agricultural Society :—

Mrs. Dorothy Treadwell having recently deceased, the farm at Topsfield, belonging to the estate of her son, the late John G. Treadwell, has become subject to your acceptance or rejection.

We send you a transcript of that part of the will of the late John G. Treadwell, in which you are interested. When advised of your action we will cheerfully conform our action thereto.

Respectfully your obedient servants,

ARTHUR W. AUSTIN, } EXECUTORS.
NATH'L J LORD, }

By a reference to the terms of the bequest, it will be seen that it is given to the society for specific purposes, which make it a conditional bequest, and if the society is not prepared to fulfil the conditions by carrying out the intentions of the testator as to the use of the property, or if for any reasons, it declines to accept the farm, it is then given without conditions to the Massachusetts General Hospital.

The Constitution requires a vote of the Trustees in order to call a meeting of the society, but until such meeting is called, this Board possesses all the requisite powers to enter into possession and to do any act in relation to this property which may be necessary for its protection, and as the society would naturally be guided in a very great degree by the advice of the Trustees, it has been deemed advisable not only to call an early meeting of the Board, but also to have prepared for their consideration some plan of action in relation to this property. The following views are therefore respectfully submitted for your consideration.

The terms of the bequest are as follows :—" After the decease of my mother, I give and devise my said farm in Topsfield to the Essex Agricultural Society and their successors forever—for the promotion of the science of agriculture by the instituting and performance of experiments and such other means as may tend to the advancement of said science. And I direct that if said Society should refuse to accept said farm, or should appropriate it at any time to other purposes than those above stated, or if the whole or any portion of said farm should be sold, given away, exchanged, or in any manner parted with by said Society, the whole of said farm shall be forfeited by said Society :—and in such event I give and devise said farm to the Massachusetts General Hospital corporation and their successors forever. The income arising therefrom to be applied in the same manner and for the same purposes as are hereinafter mentioned."

It will be seen at once that these terms are very broad and that almost any use to which the society may put this farm would cover the conditions imposed upon it, provided it was used for the advancement of agricultural knowledge. It cannot be sold, nor can it be leased, unless under such stipulations

as would tend to make it useful to the cause of agriculture generally. A simple lease, receiving rent in money, would be a perversion of the bequest, as much as a sale and the application of the grounds to the general purposes of our association. The farm bequeathed to the society has been in the occupation of the testator for many years, and it has been leased by him to the present occupant for a moderate rent, which was in part, at least, paid in setting out forest trees. This fact is mentioned as indicative of the testator's views as to one of the uses to which it might be put in subserving the interests of agriculture by experiments to be made by a tenant, and should the society see fit to accept the bequest, it would serve as a guide in its future management.

Much has been said of late of the importance of experimental farms and of the great value to be derived from experiments in the various departments of agriculture. There is no doubt much truth in the general proposition, but if any one will take the pains to calculate the cost of most experiments, to see the capital they require and the previous knowledge and skill requisite on the part of those who conduct them, in order to make them of any service, he will be convinced at once, that the means and appliances for a strictly experimental farm are far beyond our reach. To a certain extent every operation in agriculture, no matter how often it may be renewed, is an experiment, and this is especially the case in a climate so capricious and variable as our own. Since no field is ploughed, no crop sown, no harvest gathered twice under precisely the same conditions of climate, experience is only a bundle of experiments, and the failures and successes are so contradictory, that if we depart from a very few points of observation, we learn but little; we are apt to become confused and grow skeptical upon every thing connected with the operations of agriculture. This farm, therefore, if it were necessary to make it a field of experiments in the common acceptation of the term, would be an expensive and it is feared, a very useless gift, such as it was never designed to be by the donor.

There are, however, two purposes to which this farm could be applied, either of which would come within the scope of the words of the bequest, and either of which, it is confidently

believed, would advance the cause of agriculture. One is, the establishment of a school of practical agriculture; the other, the placing it in the hand of an experienced and intelligent farmer on a long lease, subject in lieu of rent to such duties in relation to this society and through us, to the public at large, as should eminently serve the cause of agriculture.

A school of agricultural practice is a great want in Massachusetts—a place where young men having finished their common school education, could be practically taught every operation on a farm in the best manner. Such a school well conducted would be a series of experiments and every well trained graduate would prove a successful one for life. Such a school started and conducted upon a simple plan without attempting anything beyond making the pupil competent to cultivate the land well, even if he could not give the scientific reasons for it, need not be an expensive one. Indeed it ought to be almost self-sustaining, and such charges only should be made for tuition and board as to cover the extra cost of its management, by the employment of more hands than would be profitable on a common farm. It is not recommended, that such a school should be undertaken by the society, nor that it should be established, unless persons can be found competent to the task and who would undertake it on their individual responsibility, the consideration for their doing so being the rent of the farm, and the fact that it would have the strong recommendation and sympathy of this society. The great want in Massachusetts agriculture, is not a race of scientific farmers, but that young farmers should not have everything to learn, when they commence their career, except what they may have picked up in the casual labor of their earlier days upon the homestead, or in the experience of a hired hand, which amounts to just nothing at all. Our common schools give every Massachusetts boy quite enough knowledge to enable him, having the practical education of a farmer, such as has been alluded to, to follow up the pursuit of knowledge in the department of agriculture for the remainder of his life. All that is needed to commence with, is a good practical foundation, and that can be had at little cost.

The other use to which this farm could be applied is, as al-

ready stated, to place it in the hands of an experienced and competent practical farmer, upon a long lease, rent free, with a view of making a full and thorough experiment as to the capacity of a farm in Massachusetts for profit as compared with other industrial pursuits. To obtain this result understandingly and with a view to the public benefit, the right selection of a tenant would be of the highest consequence, and the tenure of his lease should depend upon his compliance with the requirements of the Trustees and upon his success in the undertaking. These requirements should mainly consist: 1st, in keeping an accurate journal of every day's proceedings on the farm, in a form to be prescribed, a daily cash account for every thing expended and received, in short an accurate set of farm account books, showing the capital employed and the uses of that capital. The lease should contain all the necessary stipulations for his protection, as to valuation of stock, materials and permanent improvements to be allowed to him on the termination of his lease, and an inducement should be held out for its renewal free of rent, if he had succeeded in showing a reasonable profit in conducting the farm, without deterioration in its value. Could the right person be found to undertake this, we should have a practical illustration of good farming which would serve as a guide to the entire community. The accounts of the farm, the journal of proceedings, the diary of the weather, the application of different fertilizers to different crops, the correction of one year's results by those which followed, the improvement of pastures, the management of cattle,—all these would appear annually, under the auspices of the society, and would form a more valuable "book of the farm," than has yet been given, and adapted especially to the wants and habits of New England. It is certainly not unreasonable to hope that some suitable person could be induced to enter upon this enterprise, under the advantages which could be thus offered to him. At all events, if either of these propositions for utilizing this bequest, meet with the approbation of this Board, an attempt might be made to see if the one most improved of could be carried out in practice. Should the Trustees think well of the plans suggested, either one, or both united in one, the whole subject should be immediately taken in hand, bearing especially in

mind, that they exclude all idea of interfering in any way with the management of the farm by this society, after it has been committed to the charge of any one, beyond seeing that the conditions are fulfilled upon which it is leased. This is a vitally important element in its ultimate success for reasons which do not require to be repeated to those who have observed how fruitless have been the results of all such undertakings which are managed and directed by any but those who are personally interested in the results. Unless the farm can be placed in the charge of one, upon whom the profit and the responsibility for its well doing rest, it had better not form a portion of the property of the society.

It is not essentially necessary that any plan should be immediately adopted by the Society or that any vote be taken at present as to the acceptance or refusal of the trust committed to it. The farm can be taken possession of and managed until such time as final action is taken, with little or no expense to the society. Even if these suggestions should not be carried out for a year to come, provided they meet the approval of the society, a formal vote of acceptance of the trust is not necessary. In this, however, as in most affairs of business, the sooner attention is given to the matter and a decision arrived at, the better it will be for all parties.

Communications to the Trustees by John W. Procter and William D. Northend were also read, and the whole subject was discussed by the Board at some length. The following resolutions were then proposed by Mr. Procter and unanimously adopted :—

Whereas by the will of Dr. John G. Treadwell, late of Salem, deceased, a certain farm situate in the town of Topsfield, containing about one hundred and fifty acres of tillage, mowing and pasture land, with convenient farm buildings thereon, was generously given to the Essex Agricultural Society, to promote experiments and improvements in agriculture, and whereas by the death of the mother of said Treadwell, the society now have the entire right to the possession of said farm, for the purpose expressed in said will, therefore, voted to accept of said donation.

Voted, That the executive committee, together with Messrs.

Royal A. Merriam, Moses Pettingell and Horace Ware, be a committee of superion of the Treadwell farm, with full power to make such arrangements for its preservation and management as the said committee may in their discretion deem expedient consistent with the terms of the will, and to report at the next meeting of the Trustees.

The Executive Committee consisted of Messrs. R. S. Fay, A. W. Dodge, Wm. Sutton, J. W. Procter, R. P. Waters, T. E. Payson, who with the above named Trustees formed the committee, to which was entrusted the Treadwell farm. They at once proceeded to advertise in the public journals for a competent man to take charge of the same. Numerous applications by writing and in person were at once made to the Secretary for the place. Early in March, 1858, the committee met and from the applicants selected Nathan W. Brown, of Newburyport, as the one who seemed to them to combine the most qualifications for the charge of the farm. They accordingly had a long and free interview with him, which confirmed the favorable opinion they had formed of him, and resulted in the concluding of the following agreement:

Memorandum of agreement for a lease of the Treadwell farm in Topsfield for one year from April, 1858, *to April* 1859, *to* NATHAN W. BROWN, *of Newburyport.*

The Essex Agricultural Society agree to lease said farm to said Brown for one year for the sum of one hundred and fifty dollars.

The said Brown agrees to pay to said society for the use and occupation of said farm for said year the sum of one hundred and fifty dollars, to cultivate the same during said year so that it shall not deteriorate the soil or property, to commit no waste or fell trees without the consent of the society, to sell no hay or straw from any grain or any manure from the premises, and not to depasture transiently any cattle or other stock on the farm. To keep such a journal of the weather and of the labors upon the farm as the said society, by their President, shall prescribe, and such other minutes in relation to the operations of the farm as they may direct from time to time, the forms and blanks for the same to be furnished by the society.

It is agreed that not less than fifty dollars of the rent heretofore stipulated shall be applied in labor, under the direction of the society by said Brown, in such experiments upon crops, soil, trees or the preparation of manures, as they may see fit to direct.

Witness our hands hereto this 10th day of March, 1858.

RICHARD S. FAY, } Com. of
ALLEN W. DODGE, } Essex Ag'l So.

Witness: NATHAN W. BROWN.
RICHARD P. WATERS.

At the same time that the Committee were seeking for a suitable person to take charge of the farm, they instructed their Chairman, Mr. Fay, to prepare a circular in relation to the best mode of carrying on the same, to be printed and sent to every member of the society, of which the following is a copy :—

LYNN, March 10th, 1858.

SIR,—You are doubtless informed of the fact that the Essex Agricultural Society, of which you are a member, has lately come into possession of the farm in Topsfield, bequeathed to it by the late Dr. Treadwell of Salem, at the decease of his mother.

The terms of the bequest are as follows :

"After the decease of my mother, I give and devise my said farm in Topsfield to the Essex Agricultural Society, and their successors forever, for the promotion of the science of agriculture, by the instituting and performance of experiments and such other means as may tend to the advancement of said science; and I direct that if said Society should refuse to accept said farm, or should appropriate it at any time to other purposes than those above stated, or if the whole or any part of said farm should be sold, given away, exchanged, or in any manner parted with by said Society, the whole of said farm shall be forfeited by said Society; and in such event I give and devise said farm to the Massachusetts General Hospital Corporation, and their successors forever."

A meeting of the Trustees of the society was called on the

11th of February last, and it was voted in your behalf to accept the bequest. This acceptance, however, involves the society in no obligations, beyond that of the care and preservation of the farm for the present, and until such time as final action shall be taken upon it by the society. Nor is it necessary that any active operations should be immediately commenced, such as instituting experiments, or doing anything else for the promotion of the science of agriculture. It is sufficient for the present to take possession of the property, and to see that it suffers no detriment; but at the same time it was considered by the Trustees, that there should be no unreasonable or unnecessary delay in determining upon some plan by which the intentions of the testator, Dr. Treadwell, should be faithfully executed. The whole subject was accordingly referred to the Executive Committee, to which were subsequently added Messrs. Merriam, Pettengill, and Ware, for the purpose of making a temporary disposition of the farm during the present season, while maturing some plan for its future management.

By order of the Committee, the Secretary of the society advertised for a person to take charge of the property, which has been promptly responded to by a large number of applicants,—many of them possessing the highest testimonials as to capacity and character. This advertisement was inserted in a very general form, because it was thought very desirable to ascertain, with a view to the future, if it were probable that skilful persons could be found to carry out any well-settled plan or system of management, either under the active direction and immediate superintendence of the society, or in any other manner which might eventually be approved of. They have concluded an arrangement with Mr. Nathan W. Brown, of Newburyport, one of the applicants, to take charge of the farm for the present year, upon such terms as will, with no expense to the society, preserve the property from waste or deterioration, and prepare it in some measure for the uses to which it must be eventually devoted, if retained by the society.

The temporary occupation and care of the farm having been provided for, and the first duty which devolved upon the Committee having been performed, they have thought it advisable to lose no time in considering what course should be pursued

by the society in the future management of this trust, and to take early counsel of its members upon the subject. It is impossible to do this at public meetings of the society, especially if no settled plan is submitted for deliberation and discussion; and unless some individual will take upon himself to suggest a system to be pursued, and to present it for your deliberation, no satisfactory conclusion will ever be arrived at. Even if the one submitted should not meet with your approval, it does not follow that out of a discussion of its merits another may not eventually be found, which will receive very general approbation. The Committee have therefore requested me to prepare and to present to you, a plan for the future management of the Treadwell farm, in the hope of obtaining in this way a full and free expression of the opinion of the society upon the subject.

The first inquiry which naturally presents itself is, the property having been bequeathed to the society upon certain conditions, and the title to it resting upon the observance of those conditions, why should not the society itself direct the experiments to be performed, and conduct the operations of the farm?

There are many serious objections to this course. It might, perhaps, be sufficient to say, without going into any details, that all the funds of the society are required for the purposes to which, since its foundation, they have been applied. It is very questionable, however, even if a sufficient sum could be raised, and specfically devoted to the Treadwell farm, in experiments and in scientific culture, whether much permanent and practical good would be gained by it. The management of such an institution by a society must be delegated to its officers, or to a committee of the society, and they are liable to be changed every year; and thus, for want of undivided and continuous individual attention, the Treadwell farm would most probably exhibit in the course of time a vast number of experiments, the greater part of which would be failures.

It is an old adage, that "what is everybody's business, is nobody's business," and is therefore pretty sure of being neglected. The difficulty of undertaking anything of the kind by the society, is very fully appreciated by the Committee appointed by the Trustees to make even a temporary arrangement of the

property. What we require, in order to work out any useful purpose in a case like this, is individual effort, steadily and constantly directed to certain ends, and acting under a well organized system; not likely to be changed for a long course of years. This is particularly true, not only in this case, but in all agricultural operations, few of which are conducted with reference to a single year or single crop, and all being more or less remotely connected with what has already been done, or what is to be done, in succeeding years. A single illustration of the importance of keeping this in view, in any disposition of this farm, is the rotation of crops, extending through a period of four to even ten years, and where the manure in some cases is applied in one year to the entire rotation. The idea, therefore, of the management of the farm for purposes of experiment and of scientific cultivation by the society, is dismissed as wholly impracticable and unworthy of being entertained for a moment.

It must be borne in mind that the society has no right to alienate the farm or even to lease it for the mere purpose of deriving a revenue, although a lease, coupled with certain obligations as to experiments to be performed, however insignificant in practical value, might perhaps in a quibbling sense fulfil the conditions of the grant. But the Essex Agricultural Society has no wish to carry out in this manner the intentions of the testator. It is safe to say that it would most probably, if possessed of the means to do so, err on the other side, by attempting to make this farm a model of agricultural science and skill. The question, therefore, now to be considered is, whether a liberal performance of the conditions of the bequest can be executed without the direct interference and any active superintendence of the society, and without the application of its funds for that purpose.

The property is situated in the heart of the county, and is a fair average specimen of Massachusetts farms, as to size, soil, arable and pasture land, together with easy access to markets. It is also in the condition of most of our farms, with respect to the buildings and improvements of that nature, requiring a considerable outlay to adapt them to a skilful and scientific course of husbandry. The land is well placed in all respects; but the

soil, though good, is in need of a heavy expenditure at the commencement for manures and fertilizers, in order to develop its full capacity for profitable cultivation. If managed with a view to the largest profit consistent with continuous improvement to the soil, but little return for the investment could be expected for two or three years. There is no doubt that a living might be got from it, but not such an one as any good farmer, having an honorable pride in the pursuit, would be satisfied with, nor would the treatment of the property in the way to do this, satisfy the reasonable wishes and desires of the society.—It is believed however, that this farm, notwithstanding these disadvantages, can be disposed of in a manner to meet fully the intentions of the donor, and to advance agricultural science and the value of agricultural property in Massachusetts in a greater degree than has yet been done by experiment or scientific cultivation, with no outlay of money, and with little labor to this society. The plan to be submitted for your consideration, with a view to effect this object, is a simple and a perfectly practicable one.

It is proposed to offer the Treadwell farm to some suitable person, possessing the requisite skill and means, to occupy, stock and improve it on his own individual responsibility, upon such terms and conditions as will accomplish all the objects contemplated by the late Dr. Treadwell and all the reasonable expectations of the society. In order to understand how this is to be accomplished, a summary of the conditions which would form the basis of such an occupancy, and which will explain in a simple manner to all applicants of the farm, what will be required of them if it meets your approval, is submitted.

The occupant must agree,

1st, To equip and stock the farm at his own expense.

2d, To erect, alter and repair all buildings and enclosures at his own cost.

3d, To keep all the buildings in good repair and to have them insured at their value, to be fixed by, and payable to, the society in case of loss, the proceeds, however, to be applied to the repair and erection of other buildings, or to replace those injured and destroyed.

4th, To commit no waste or fell timber or wood without the written consent of the society by its appointed officers.

5th, To sell no upland hay, or the straw from any grain, to be consumed off the premises, nor to depasture the land except with stock kept upon the farm.

6th, To keep an accurate set of farm account books, commencing with a full and complete inventory of stock and materials upon the farm, which books shall show every cash payment and receipt, every purchase, sale and transaction on the farm, whether in the way of exchange, barter, or otherwise, and showing also in an intelligible manner, the expenditures in, and receipts from, each department of the farm. These entries shall be made from day to day, and posted in proper form once in every month; and from them a balance sheet shall be annually prepared, showing the gain or loss of the operations of the year.

7th, To keep a daily record of the labor performed and its nature, of the weather, of heat and cold, and the amount of rain that falls by a rain-guage to be kept in a tabular form, the blanks for which to be furnished by the society and to be placed at its disposal.

8th, To give a statement in writing at least once in each year, showing his general system of management, of his method of stock feeding, and of any other matter connected with farm management, which will, in his opinion, promote the science of agriculture.

9th, To cultivate, during each year of his occupation, separate from the general management of the farm, one acre of land,—to be set apart by the society once in every ten years, in such a way as not to interfere, if possible, with the usual farming operations,—in some one vegetable, grain, or grass, with the view of ascertaining, by actual experiment and careful cultivation,

1. What is the most profitable rotation of crops.

2. What is the most economical way for manuring for the entire rotation.

3. The best manure for each particular crop and the mode of its application.

4. The cost of labor and manure for each crop.

5. The actual money value derived from it.

6. The condition of the soil at the end of each crop in the rotation, giving a separate account in writing of his proceedings in relation to this acre, from year to year, for the use of the Society.

10, To manage the entire farm in such a manner as to increase its productiveness from year to year, by judicious cultivation, and by a careful attention to every department of the usual farm husbandry in Massachusetts.

On the part of the Society it should be agreed that the occupant be permitted,

1st, To possess and improve the farm so long as he faithfully performed the conditions before stated, without rent, and free from any interference in its management by the Society or its officers, except so far as to see that the conditions are performed.

2d, That in case of his death during the occupancy, or its termination from any other cause, produced by sickness or inability to perform the conditions, other than from neglect, the heirs, executors, administrators or assigns of the occupant may enter upon and remove all the stock, implements and other personal property belonging to him. He shall also be entitled to crops sown and not harvested, and such other reasonable allowances as to manures unapplied, or those which have been applied to the land for crops not yet planted. He shall also be allowed in such case, for all permanent erections and improvements attached to and going with the land, according to their actual value to the land, at the expiration of the occupancy, provided the sum shall not exceed two thousand dollars, which shall be taken as the extreme value in any case for such improvements.

3d, In case of disagreement between the said occupant and the society, upon any matter whatsoever, or in the event of an appraisal being at any time necessary, the same shall be submitted to three disinterested persons, to be appointed on the application in writing, by either party, to the Judge or Register of Probate in the County of Essex, whose decision shall be final upon all questions submitted, whether of law or fact.

In preparing these conditions for your consideration the en-

deavor has been to make them as few and concise as possible, acquiescing entirely in the opinion of a high authority, Mr. Woodfall, upon the general subject of leases of landed property. "They should have," he says, "as few restraining covenants as possible. They merely retard and annoy a good farmer and rarely improve the practice of the unskilful." So also with respect to the term of occupation, his opinion is the recorded experience of all good agriculturists. It should be long enough to encourage men of capital and skill to cultivate the soil to the best advantage. He does not consider *twenty years*, the usual term of leases in the northern part of England, more than enough to enable the occupier to conduct and mature a profitable system of management. The reasons for this are obvious enough upon reflection. Many of the most expensive operations and outlays of a good farmer have a prospective result as regards the profit to be derived. The capital thus expended is only to be drawn back by periodical returns after a lapse of time. In the providing of extraneous manures, in the adoption of a rotation of crops, which to be effectual must extend through many seasons, in draining land and the like, time is necessary both to effect the operations and to recover with a future profit the capital employed.

It has been suggested that it will be impossible to find any one combining the requisite capital and skill, who would be willing to undertake the management of the farm upon the conditions which have been enumerated. It is difficult to believe that such a person cannot be found, and it is not certain that he may not exist among the number of present applicants for the farm. There are persons ready to purchase this property for six thousand dollars for farming purposes, and there are tenants ready to lease it from year to year at a rent of one hundred and seventy-five dollars per annum. It certainly ought, therefore, to command the services and capital of a competent person who pays no rent, but who, as an equivalent, is called upon to do little more than what every good farmer ought to do, who wishes to make the most of his property.

The principal duty which he is called upon to perform and one most sadly neglected by the farmers of Massachusetts, is to keep a daily record of his doings. It has been truly said that

no one ever goes to ruin who keeps a correct set of accounts. By consulting them from time to time, the farmer can always tell what is profitable and what is not profitable to cultivate, and he will always have a guide for the future in the past.—With these accounts before him, together with an annual valuation of his stock on hand, as if he were about to close business and quit the farm, the farmer will always be informed of his exact position, and be able to see how it can be made better.

"Let any farmer make the experiment, (of keeping a correct set of accounts), and he will find it both interesting and useful to know from year to year the actual products of his farm. Let everything which can be measured and weighed, be so tested; and let that which cannot be brought to an exact standard, be estimated, as if he himself were about to sell or purchase it. Let him likewise, as near as possible, measure the ground which he plants, and the quantity of seed which he uses, and the manure which he applies. The labor of doing this is nothing compared with the satisfaction of having done it, and the benefits which must arise from it. Conjecture, in these cases, is perfectly wild and uncertain,—varying often, with different individuals 100 per cent. Exactness enables a man to form conclusions which may most essentially and in innumerable ways avail to his advantage. It is that alone which can give any value to experience, it is that which will make his experience the sure basis of improvement, it will put it in his power to give safe counsel to his friends, and it is the only ground on which he can surely place confidence in himself."—*Farmer's and Planter's Encyclopedia.*

To do all this—so justly and strongly urged upon every farmer in the above extract—is one of the chief conditions for the proposed occupancy of the Treadwell farm. Its enforcement should be rigidly exacted, believing that a correct system of accounts once brought into use would do more to promote the cause of agriculture than anything else within the means and scope of the society.

There is one other important consideration which ought not

to be overlooked. Agriculture in Massachusetts can never be carried to a high state of perfection, unless more capital is brought to the cultivation of the soil than is now devoted to it. Capital makes skill; and if it can be made to appear that a proper cultivation of our farms is attended with a fair profit, there are many who would seek to make an investment in farming property in preference to anything else, and who would furnish also the capital necessary to develop its productiveness. Capital is now deterred from seeking investments in land and in its cultivation, from a prevailing opinion of its unprofitableness; but if it can be shown in a practical way, such as the detailed accounts of the Treadwell farm might do, the exact cost of cultivation and the results of the farm in every department from year to year, the tone of public opinion might be changed, and the value of our farms materially enhanced. The present state of our knowledge upon this subject is exceedingly vague, but the adoption of this plan would do much, in the course of a few years, to bring an array of facts before the public, from which something approaching to certainty and correctness in the conclusions to be deduced from them, might be reached.

No allusion has been made to a plan which has been proposed, to make this farm subservient to the uses of the society, by adopting it as the permanent place for its public meetings and for the annual show, because this arrangement would not necessarily interfere with doing so, if at any time it should be thought advisable. It is believed that public opinion coincides in this respect with the long established usage of changing the place for holding the annual show from time to time, and in this manner spreading the benefits to be derived from it over the entire county. It is, however, to be hoped that at no late day, there will be established at Topsfield, as well as at some other convenient points within the county, regular market days; and in this connection the farm may become incidentally of additional service to the cause of agriculture.

The great and essential point, however, to be arrived at, and what must not be lost sight of for a moment, is the promotion of the science of agriculture, in the broadest sense of the word, and this plan is presented to you as a simple and practical mode of accomplishing the object without interfering with the other

purposes of the society in the use of its funds. It is desirable to have the opinion of every member upon a matter of so much importance, and it is believed that in no other way can we arrive at so satisfactory a result, as by asking each to say if this proposed disposition of the property meets with his approbation; and if it does not, to suggest on his part any other plan for consideration. In this way some well considered and practicable measure may be eventually adopted, even if the one now proposed is not favorably received. The conditions which have been stated may receive many modifications without interfering with the general plan for the occupancy of the farm, and the present year's experience will be of service in this respect, as it will make us more familiar with the farm and its capabilities.

Accompanying this letter, there is an envelope and printed paper enclosed, with a blank left in which to insert the word "approved" or "disapproved," as the case may be, which it is requested, that you will fill up and sign with your name and return it at an early date, together with any suggestions you may have to offer upon this subject.

Very respectfully, your obedient servant,

RICHARD S. FAY,

Chairman of the Executive Committee.

P. S. Since the above letter was written and placed in the printer's hands, I have visited the Treadwell farm and examined the property with some care. The condition of the land and the character of the buildings show very clearly the baleful effects of a yearly tenancy. The farm is beneath even the average condition of such property in Massachusetts, and a long and well-devised system of treatment will be required to bring it upon an equality with many of those in its neighborhood. It is said that those who have heretofore leased the property have done well upon it; but if such has been the case, it is very apparent that this has been accomplished by a different system of agriculture from that which is now recommended. The goose has been nearly killed that laid the golden eggs on

this property, and she will require skilful and careful nursing before she will commence again the process of incubation.

At a meeting of the Trustees June 23, 1858, the Committee made the following report:

The Committee to whom was referred the subject of the "Treadwell Farm," with authority to take possession of the same, to make a temporary lease or disposition of it and to report some permanent plan for its future management, beg leave to report—

That in the performance of the first part of the duty assigned to them, they made a settlement with Mr. Rea, the tenant in occupation, and took possession of the property in behalf of the society. They likewise made an arrangement with Mr. Nathan W. Brown, of Newburyport, for the occupation and care of the farm for one year from the first day of April last; a copy of the agreement with Mr. Brown is hereto annexed. The buildings were found to be in a bad state of preservation, but it was not deemed advisable to make any repairs upon them, for reasons which will naturally present themselves to every one, arising from the uncertainty which exists as to the future disposition and use of the property. It has, however, been deemed expedient to add to those already there a privy and a set of hog pens, the one being in the opinion of the committee an absolute necessity to the comfort and well-being of the tenant, and the other equally essential to the operations of the farm. The tenant, Mr. Brown, has thus far fully justified the expectations of the committee, by his liberal management with respect to the gradual improvement of the property.

The immediate care of the farm being thus provided for, a circular was prepared in which a plan was set forth for its future permanent disposition, the principal feature of which was to establish a system under which a steady and progressive improvement should be secured, and uniting with it the accomplishment of the purposes and intentions of Dr. Treadwell in his bequest, and at the same time without making it a charge upon the funds of the society.

In submitting this plan to the consideration of the society, as the best which the nature of the case admitted, it was not attempted to enter into any minute details, and some additional provisions would be necessary in carrying it out effectively. In getting a general expression of opinion, it was thought unwise to endeavor to do anything more than to state the leading points, so as to give a general view of the system proposed for adoption, and if this met with approbation to leave it to those who may be called upon to execute it, to mature it in detail in the final instrument which shall give it a lasting vitality in the form of lease or contract.

The circular referred to, and which is appended as a part of this report, was sent to every member of the society in the month of March last, desiring a reply, stating whether he approved or disapproved of the proposed disposition of the farm. Each member was also invited to make any suggestions in relation to the matter and to propose any other plan which was in his opinion preferable to the one presented for his consideration.

The number who have replied in accordance with this request up to the 18th of this month (October) has amounted to 262 (*two hundred and sixty-two;*) of these *two hundred and thirty-two* have been simple approvals, *fourteen* have approved offering some suggestions in relation to carrying it out, *five* have disapproved without comment, and *eleven* have disapproved giving their reasons therefor. Many of the suggestions both on the part of those approving and disapproving are of much value and will be of great use in carrying out the plan proposed, if finally adopted. On one point there is almost a complete unanimity of opinion, viz: that the farm ought not to be a charge upon the funds of the society, and several of those who have disapproved of the plan give as the reason for so doing, the fear that it may involve the society in too much expense.

The Essex Agricultural Society is in the happy condition of being free from debt. It is believed that its future usefulness depends upon its maintaining that enviable position, and the strong expression of opinion upon this point, will, it is hoped, have its full weight in carrying out any plan in relation to this property.

The committee would urge immediate action in coming to some definite conclusion upon this matter. It is true that the safe-keeping of the farm is provided for until April next, but in order not to lose another year and perhaps a good opportunity for a beneficial management of it, no time should be lost in making a final disposition of it, so as to present it for the approval of the society at its meeting in September next. Whoever is to have the farm, ought to be preparing this autumn for its occupation in the spring. If the subject is postponed to a later period, the matter will have been no farther advanced than when the society came into its possession.

There are one or two legal questions connected with the bequest of Dr. Treadwell which will require attention. One small pasture lot was purchased by him after the date of the will, and there is a piece of salt marsh, always connected with and used as a part of the farm, which lies in the town of Ipswich. There is little doubt with respect to the pasture lot, that it passes under the will, but the other admits of a question. There is also a small piece of land agreed to be purchased of the heirs of Mr. Crowninshield, the title to which was not completed at the time of the death of Dr. Treadwell, which it may be thought advisable for the society to buy. It is recommended that these matters be placed in the charge of a committee with full powers to act in behalf of the society.

In conclusion, the committee recommend that this report being accepted, it be placed in the hands of a committee with instructions to proceed and, if possible, to make an arrangement with some suitable person, for the occupation of the Treadwell farm upon the plan generally, as contained in the circular annexed, with such further limitations and restrictions as they may think expedient in order to insure its faithful execution; which agreement shall be reduced to writing, in legal and binding form, subject, however, to final approval by the society at its meeting in September next.

All which is respectfully submitted,

RICHARD S. FAY, CHAIRMAN.

The report of the committee was accepted, and the following gentlemen were appointed a committee to carry out the suggestions therein in reference to the Treadwell farm, viz:—Messrs. R. S. Fay, J. W. Procter, Wm. Sutton, R. A. Merriam, N. J. Lord, and George B. Loring. At the annual meeting of the society at Danvers, September 29th, 1858, Dr. Loring, on behalf of the committee, presented the following report:

The committee to whom was referred the management of the Treadwell farm, would report:—

In considering the plan to be adopted by the society for the management of the farm, they have been governed by a desire to carry out the design of the donor with regard to experiments in the art of agriculture, to avoid all possibility of using any of the funds of the society on the farm, to secure such improvements as can be made without expense to the society, and to hold out inducements to an efficient, faithful, and well qualified occupant of the premises.

The condition of the farm is such as to prevent its being a source of profit to any one at present. It requires the most prudent and skillful husbandry to put it in order for the very purposes to which it is dedicated. And it seems to be important that while steps are taken to improve its condition, the society should at the same time enjoy those benefits for which it was bestowed.

It must be apparent to every one that whoever occupies the farm must be placed in such a situation as to secure to himself a living, and such an interest in the place as will induce him to commence a system of cultivation, which will be advantageous to himself and to the society. The farm, while it is devoted to experiment, must also be made a source of income, in the legitimate line of agricultural business—a double duty which the committee have endeavored to bear in mind.

For the accomplishment of these purposes a long occupancy has been deemed necessary, both for the proper development of experiments made by the society, and for the benefit and just advantage of the occupant.

It has been considered advisable that such products of the

farm as can be used for the repair of the buildings which are in a very dilapidated condition, should be appropriated to that purpose.

The general business of the farm, such as raising crops, managing the stock, using the pastures, applying manures, disposing of the produce, &c., it is thought proper to submit to the occupant.

It is proposed to place the farm under the supervision of a standing committee consisting of the President, Secretary, and three members selected by the Trustees from their own body, whose duty it shall be to visit the farm monthly, and to direct such experiments as they may deem proper, or as may be suggested to the committee by any member of the society. This committee is to employ the occupant to conduct such experiments, and to allow him such remuneration for any extra time and labor bestowed upon them as will amount to what would be a fair rent for the farm—consideration being had for the benefit which the occupant may derive from the sale or use of the products of any experiment.

With this general design before them, and guided by the plan presented by the President of the society in his judicious and elaborate letter of March 10th, addressed to the members of the society, the committee have drawn up terms of agreement with Mr. Nathan W. Brown, the present occupant of the farm. They have endeavored to protect the farm against strip or waste. They have secured the use of the hay crop on the farm. They have provided for the care of the buildings. They have secured to the society an opportunity for experimental agriculture free of expense. They have made arrangements for a system of farm accounts, meteorological tables, general observations, for recording the time of planting, sowing, gathering crops, the advent of birds and blossoms in the spring, date of frosts in spring and autumn, and such other facts in regard to the seasons as are of importance and interest to the farmer in this latitude.

These observations will be annually reported by the committee on the farm, and will form a part of the transactions of the society.

In submitting our report, we have full confidence in the way

proposed the liberal and philanthropic intentions of the donor will be fulfilled, and that the farm will be a source of information, which will give new value and new interest to our society. We consider that the possession of the farm renders our organization complete, and enables us to perform what every similar association should perform—the improvement and development of the agricultural interests which come under its influence. In this view we congratulate the society on its possession, and on the opportunity it affords for adding to the enviable reputation it has so long enjoyed.

The committee would report the following indenture :—

This Indenture of two parts made this day of A. D. 1858, by and between the Essex Agricultural Society of the first part and Nathan W. Brown, of Topsfield, of the second part, witnesseth—

That whereas John G. Treadwell, late of Salem, deceased, by his last will and testament devised to said society his farm in Topsfield, for the purposes expressed in said will, in the words following, to wit :—"For the promotion of the science of agriculture by the instituting and performance of experiments and such other means as may tend to the advancement of said science," and whereas said society has accepted said devise, and whereas in order to carry out the intentions of said testator and at the same time not to involve the society in expenditures for that object beyond its means, it has been considered advisable to place the farm under a system of cultivation which shall, while carrying out said intentions, maintain itself as near as may be, and in order to accomplish these two objects, it has made arrangements with said Brown to occupy and improve the same under the direction of the society, by its officers, or by others who may be appointed to supervise and direct its operations, so as to secure the institution of experiments calculated to advance the science of agriculture, and also advance said science by a continuous course of good husbandry, extending through a long period of years, the progress and results of which shall be published for the use of all persons interested in practical as well as scientific agriculture ; and whereas this can

be accomplished only by combining the daily routine of farm management with skill and science, the principles of which, as far as it is possible, should be embodied in the agreement for the occupation and management of said farm; and whereas said Brown is now in the occupation of said property for the purposes and objects aforesaid, under an agreement with said society by its Trustees for the term of one year from April last, but without any full and distinct terms and conditions with respect to the same; and whereas it is desirable that a commencement should be made as early as possible under this indenture, which it has been mutually agreed shall be on the first day of January, A. D. 1859, it has therefore been agreed between the said parties, that said Brown shall occupy said farm for the term of twenty years from the said first day of January, 1859, unless sooner terminated by his death, or from some other mode hereinafter provided for, under the direction and supervision of the party of the first part, and for the purposes aforesaid, and to carry on the same upon the following rules and conditions, during said term of twenty years:

1st, To equip and stock the farm at his own expense.

2d, To erect, alter and repair all buildings and enclosures at his own cost, except such as may be made by direction of the society from any sales of timber from the said farm.

3d, To keep all the buildings in good repair and to have them insured at their value to be fixed by and payable to the the society, in case of loss, the proceeds, however, to be applied to the repair and erection of other buildings, or to replace those injured and destroyed.

4th, To commit no waste or fell timber or wood without the written consent of the society by its appointed officers.

5th, To sell no upland hay, or straw from any grain, to be consumed off the premises.

6th, To keep an accurate set of farm account books, commencing January 1st, 1859, with a full and complete inventory of stock and materials upon the farm, which books shall show every cash payment and receipt, every purchase, sale and transaction on the farm, whether in the way of exchange, barter, or

otherwise, and showing also in an intelligible manner the expenditures in and receipts from, each department of the farm. These entries shall be made from day to day and posted in proper form once in every month, and from them a balance sheet shall be annually prepared showing the gain or loss of the operations of the year.

7th, To keep a daily record of the labor performed and its nature, of the weather, of heat and cold, and the amount of rain that falls by a rain-gauge to be kept in tabular form, the blanks for which as well as the instruments for ascertaining the same, shall be furnished by and belong to the society, and be always open to its inspection and use.

8th, To give a statement in writing at least once in each year, showing his general system of management, of his method of stock-feeding and of any other matter connected with farm management, which will, in his opinion, promote the science of agriculture.

9th, To institute and perform such experiments in agriculture as the said society shall direct, in each and every year, at his own cost and charge, provided that the same shall not exceed upon an accurate account being rendered of the cost of the same for time, labor and all other charges, the sum of one hundred and seventy-five dollars, after crediting to said account the proceeds of any crops derived from said experiments. And in case of any excess in the cost of said experiments above said sum, such excess shall be paid by said society. And in case the said experiments, the cost of which to be ascertained in the manner aforesaid, shall fall short of said sum of one hundred and seventy-five dollars within any one year aforesaid, then the said Brown shall institute and perform any other experiments which may be directed by said society to be performed within the said year, or to do and perform any other act upon said property, as shall, without interfering with the general crops or with a rotation of crops, tend to improve the same, the whole cost of such experiments not to exceed in all the said sum of one hundred and seventy-five dollars, and any excess thereof to be paid by said society as before stipulated. It being further understood that said Brown shall not be called

upon to perform any experiments or make any improvements within any one year, at a cost to himself of more than said sum of one hundred and seventy-five dollars, although the cost of any experiments or improvements so directed and performed in any previous year, may not have amounted to said sum of one hundred and seventy-five dollars within that year.

10th, To manage the entire farm in such a manner as to increase its productiveness from year to year, by judicious cultivation and by a careful attention to every department of the usual farm husbandry of Massachusetts.

On the part of the society it has been agreed that said Brown shall be permitted—

1st, To possess and improve the farm so long as he shall faithfully perform the conditions before stated, without rent and free from any interference in its management by the society or its officers, except so far as to see that the conditions are performed.

2d, To receive to his own use all the products of the farm, except such as shall be received and realized under the experiments to be performed for the benefit of agriculture, as provided for under article 9th, which are to be specially credited, with a view of ascertaining the cost of the same, as therein provided.

3d, That in case of the death of said Brown during the occupancy, or its termination from any other cause, produced by sickness or inability to perform the conditions, other than from neglect, his heirs, executors, administrators or assigns may enter upon and remove all the stock, implements and other personal property belonging to him. He shall be entitled to crops sown and not harvested, and such other reasonable allowances as to manure unapplied, or those which have been applied to the land for crops not yet planted. He shall also be allowed, in such case, for all permanent erections and improvements attached to and going with the land, at the expiration of the occupancy, provided the same shall not exceed one thousand dollars, which shall be taken as the extreme value in any case

for said improvements, and provided said erections and improvements were made by the said Brown, under the written approval of said society by its appointed agents, at his own expense.

4th, In case any timber shall be felled by consent of said society, the proceeds of the same shall be applied under its direction to the erection of buildings or such other permanent improvements as it may direct.

5th, In case the society should at any time vote to hold its annual show at said farm, whether for a single occasion, or regularly from year to year, it shall have the right to enter upon said farm, or upon any portion of the same for said purpose, indemnifying said Brown for any loss or injury to any crop, or to any portion of said land or the enclosures for the same, but not for the use of said land or any portion thereof. The said society reserving to itself the right at all times of entry upon said property, for all the purposes contemplated in the will of said Treadwell, as before stated.

6th, In case of disagreement between the said Brown and the society, upon any matter whatsoever, or in the event of an appraisal being at any time necessary, the same shall be submitted to three disinterested persons, to be appointed on the application in writing by either party to the Judge or Register of Probate and Insolvency in the county of Essex, or to any judge of any court of record within the said county, the decision of said persons so appointed or a majority thereof shall be final upon all questions submitted, whether of law or fact.

And the said parties of the first and second parts hereby bind themselves each to the other for the full and faithful performance of the aforementioned conditions.

In witness whereof, the Essex Agricultural Society by
President of said society, duly authorized by a vote of said society to execute the same, of the first part, and the said Nathan W. Brown of the second part, have interchangeably set their hands and seals, the day and year above written.

The following votes were then submitted, as part of the report, and the report having been acccepted, were unanimously adopted :—

Voted, That the Essex Agricultural Society, recognizing the liberality of the bequest of Dr. John G. Treadwell, of his farm in Topsfield, by his last will and testament, and desiring to carry out the intention of the donor, do hereby accept the same.

Voted, That the property so bequeathed to this society be known by the name of the Treadwell farm.

Voted, That the indenture, as reported by the committee appointed by the trustees for that purpose, between this society and Nathan W. Brown, for the occupancy and management of said farm, for the purpose of carrying out the intentions of the donor be hereby approved, and that the President of the society is hereby authorized to execute the same on behalf of the society.

Voted, That the Committee on the Treadwell farm be authorized to construct a new barn on the premises, provided no draft be made on the permanent funds of the society for that purpose.

And it was further

Voted, That the Trustees be instructed to appoint three of their number at an early day, to act with the President and Secretary as the committee on the Treadwell farm, and that in the mean time the present committee have charge of the same.

Since the meeting of the society the above indenture has been executed by Daniel Adams, President of the Society, and Nathan W. Brown, of Topsfield, so that the farm will be in the occupation of the latter for the term of twenty years from the first of day January next, subject to all the conditions specified in said indenture.

REPORTS, &c.

FRUITS.

The Committee report :—

That the show of Fruits was fine, and notwithstanding the small quarters in Granite Hall, we were able to present 864 plates and dishes of fruit. Pears, both in size and quality, were equal to any previous season. Apples upon the whole we thought better in kind, and scarcely one of the old discarded varieties were seen. Grapes, owing to the mildew of the leaves, were not good ; the only Isabella grapes presented were those that had been ringed or girdled, a process described in the latter part of this report. We have not as yet found a hardy grape of as good quality as the Isabella, ripe for gathering the first week in September. Regarding the pear for farm culture we feel assured, that the hardy fall and winter cooking fruit will give the best returns in sales. There is standing in our neighborhood a large pear tree, which is at least 40 years old, bearing annually good sound fruit ; the owner took from this tree in 1847, 3 1-2 bushels for his own use, and sold the balance for $26.50. This variety is Rushmore's Bon Chretian, a native pear of large size, described by Prince in the Pomological Manual as "one of the greatest bearers ripening late in the fall or early winter, and when full ripe, can be used for baking without sugar ; it is very much cultivated on Long Island, and particu-

larly by those who supply the markets with fruit." This variety in common with the Pound or Uvedales St. Germaine, Black Pear of Worcester, Spanish Bon Chretian, Catillac, and Vicar of Winkfield, we apprehend would produce a better income than double the number of our finest table pears. The late Rob't Manning said of the Black Pear of Worcester, Pound, and Catillac, that "the extensive cultivation of these sorts in large orchards, would produce greater and surer income, for the capital employed, than any other investment."

The Black Pear of Worcester is extensively cultivated in many towns on the South Shore, particularly at Hingham, where it is called the Iron Pear, and considered the most profitable kind we have.

The following Premiums were awarded :—

For the best 12 specimens of the Hunt's Russet Apple, to Amos Brown of Danvers ; Gravenstein, to Lake & Co. of Topsfield ; Minister, to Amos Brown of Danvers ; Sweet Baldwin, to Aaron Low of Essex ; Roxbury Russet, to J. S. Leavitt of Salem ; R. I. Greening, to David Low of Essex ; Porter, to Jonathan Berry of Middleton ; Baldwin, G. H. Bachelder of South Danvers ; Hubbardston Nonsuch, William Wolcottt of South Danvers ; Danvers Winter Sweet, John V. Stevens of South Danvers ; Pickman Pippin, Horace Ware of Marblehead ; Ribston Pippin, Horace Ware of Marblehead ; Seaver's Sweet, Frederick Howe of Danvers ; Haskell Sweet, Aaron Low of Essex ; Fall Harvey, Fred'k Howe of Danvers ; Drap d'or, James P. King of South Danvers ; Lyscom, Horace Ware of Marblehead ; Green Sweet, Robert Manning of Salem, $1.00 each.

For the largest number of the above varieties to

Benjamin P. Ware, of Marblehead,	$5 00
Second, Josiah Newhall, Lynnfield,	4 00
Third, Robert Manning, Salem,	3 00
Fourth, William Weeks, Salem,	2 00

PEARS.

For the best dish of 12 specimens of the following pears :— Bartlett, to Rufus Sargent of Newburyport.

Belle Lucrative, to George Nichols, Jr. of Salem.
Seckel, to George Nichols, Jr. of Salem.
Vicar of Winkfield, to William D. Pickman of Salem.
Winter Nellis, to Wm. C. Barton of Salem.
Lawrence, to A. D. Rodgers of Salem.
Glout Morceau, to L. Merrill of Danvers.
Bon L. d'Jersey, to John F. Stevens of South Danvers.
Clairgeau, to W. C. Barton of Salem.
Lewis, to Abel Procter of South Danvers.
Wilkinson, to C. F. Ives of Salem.
Golden Beurre, to Nathan Weston of Salem.
Andrews, to H. M. Barker of Salem.
Gansel's Bergamot, to A. D. Rodgers of Salem.
Thompson, to A. D. Rodgers of Salem.
Angouleme, to Volney C. Stow of Salem.
Beurre Bosc, to W. C. Barton of Salem.
Fulton, to Lake & Co. of Topsfield.
Catillac, to Adam Nesmith of Salem.
Urbaniste, to L. Merrill of Danvers.
Buffum, to George Nichols, Jr. of Salem.
Bezi de La Motte, to G. L. Hodgkins of Salem.
Black Pear of Worcester, to W. D. Northend of Salem.
Pound, to N. Weston of Salem.
Petre, to Warren Sheldon of Danvers.
Washington, to A. D. Rogers of Salem—$1 00 each.

For the largest number of the above varieties :—

To Robert Manning of Salem,	5 00
Second, George Nichols, Jr. of Salem,	4 00
Third, Abel Proctor of South Danvers,	3 00
Fourth, Charles F. Putnam of Salem,	2 00

Best basket of Assorted Fruit :—

To Mrs. G. L. Streeter of Salem,	5 00
Second, J. Lake of Topsfield,	4 00
Third, N. Bodwell of Boxford,	3 00
Fourth, G. P. Sargent of Newbury,	2 00

GRAPES.

Best Isabella, to A. T. Bosson of Salem,	3 00

Best Native, to James Blood of Newburyport,	2 00
Second best Native, to Lake & Co. of Topsfield,	1 00
Earliest ripened Native, to E. Roberts of Salem,	1 00
Mammoth Seedling, to A. D. Rogers of Salem,	1 00
Clinton, to J. J. H. Gregory of Marblehead,	1 00

PEACHES.

The show was meagre—no premium was awarded, but a gratuity—

To Moses Pettengill of Topsfield,	2 00
N. Bodwell of Boxford,	1 00
C. F. Ives of Salem,	1 00

The following were awarded as Gratuities:—

Charles F. Putnam, Salem,	2 00
W. Mack, Salem,	2 00
N. Horton, Newburyport,	2 00
A. H. Sanger, South Danvers,	2 00
W. D. Pickman, Salem,	1 00
J. V. Stevens, South Danvers,	1 00
J. L. Smart, Danvers,	1 00
Warren Sheldon, Danvers,	1 00
S. P. Fowler, Danvers,	1 00
C. F. Ives, Salem,	1 00
Peter Wait, Salem,	1 00
D. H. Cutter, Newburyport,	1 00
Adam Nesmith, Danvers,	1 00
Wm. F. Horton, Newburyport,	1 00
F. M. Andrews, Essex,	1 00
H. Very, Danvers,	1 00
Joseph Andrews, Essex,	1 00
A. L. Moore, West Newbury,	1 00
Nathan Tapley, Danvers,	1 00
Jonathan Berry, Middleton,	1 00
S. Newman, South Danvers,	1 00
G. P. Sargent, Newbury,	1 00
David Low, Essex,	1 00
Samuel Adams, Topsfield,	1 00
Amos Brown, Danvers,	1 00

Abel Procter, South Danvers,	1 00
Albert Abbot, Danvers,	1 00
Lewis Allen, South Danvers,	1 00
A. D. Rogers, Salem,	1 00
H. N. Barker, Salem,	1 00

There were some 8 to 10 bottles of Wine presented; the committee found great difficnlty in deciding upon the various brands, and would recommend that a special committee be appointed for this purpose. They have ventured to recommend a gratuity of $1 00 each, to be paid to William G. Kilham of Salem, for Isabella, and to S. Fernald of South Danvers, for Currant Wine.

The Chairman adds the following remarks, on his own responsibility, hoping they will commend themselves to the careful consideration of all fruit growers. First, as to

PEARS. The pear tree is said to be a longer lived tree than the apple. Notwithstanding this most of our newly introduced fruits show symptoms of decay, while many of the old varieties which are scattered here and there throughout New England are still in a bearing and healthy state. If it is admitted that the natural life of this tree is from 50 to 100 years, it becomes of the highest importance to ascertain, if possible, the causes of this premature decay. The old pear trees alluded to, as far as we can ascertain, are growing upon the spot where they came up from seed, or transplanted when young with their *tap root* uninjured. Our cultivators at the present time invariably cut off the tap root, in order that lateral roots may multiply and the trees grow faster and more vigorously, as they unquestionably do for *a time*, but not we apprehend for permanency. In nature, there is an equilibrium between the roots and top of all trees, and by cutting off the tap root, we interfere with its healthy action by producing a forced growth, and a sort of plethora, which may tend to produce disease, although it may hasten its bearing. Another cause for this decay may be from the practice of Van Mons; many of our new varieties originally came from him, the leading feature of whose theory was to *subdue or enfeeble* the original coarse luxuriousness of the

tree, gathering his fruit from which he took his seed *before* fully ripe, and allowing the fruit to rot; he cut off the tap root, and annually shortened the leading and side branches, besides planting his trees *very near together*. Duhamel of France, it is said, was in the habit of planting seed from the finest table pears of his day for many years without producing one good variety. Van Mons, on the contrary, by the enfeebling process has produced more than a score of fine varieties. May this not possibly be another cause for the of appearance of many trees upon which his varieties are grown? The healthiest pear trees we have *recently seen* were upon the farm of Gen. Newhall at Lynnfield. These were grown from seed sown some years since, were remarkably thrifty, and much larger than any we have ever seen at that age from the seed. A few of them were in flower; and these trees had not been pruned in root or side branches, their side branches protecting the trunk from the scorching rays of an August sun. We apprehend that it will be found sooner or later that this cutting off the tap root and pruning the side limbs of our trees when young is a bad practice. An Illinois cultivator has said that the "effects of pruning the trunks of young trees severely results from disturbing the natural relation of the ascending and descending sap; he allows the shoots on the trunks to grow on, and that in two years they covered them to the ground; his trees then started with a vigorous growth throughout the whole top, and are now loaded with fruit, while a neighbor who continued the practice of trimming the bodies of his trees lost every one by what he called pear blight."

Trees of the apple and pear are subject to a sort of dry canker or desiccation of the bark, which is said by Bravey of France, as by many of our cultivators, to be caused by the too powerful rays of a burning sun occurring immediately after a shower, striking the branches still wet, often producing in young trees this desiccation of the bark. In proof of this we find these appearances generally on the south side of the stem, more especially on the south-south-west side, or towards the 2 o'clock sun. The means of protecting the trees adopted by Downing was to white-wash the trunk in spring; we find, however, a wisp of straw matting or sea-weed, to answer the purpose,

covering the trunk quite up to, or upon the lower limbs. Although the pear tree generally requires a retentive soil, in order to give good returns, a swampy or wet land, or where water stands under the surface (or sub-soil,) is an unsuitable location for this tree; in such a place it may be necessary to take off the tap root, that the upper lateral roots may be kept near the surface. If the roots of any fruit tree enter and remain in a swampy or wet soil, such roots will decay and a *corresponding* decay (sometimes called canker) will be seen commencing in the *top limbs*.

GRAPES—IMPORTANCE OF LEAVES. There are many varieties of native grapes which have been from time to time recommended for culture; among them (as a wine grape) stands the Catawba, which is rather extensively grown at the west for this purpose. As this grape is later than the Isabella, it is not much cultivated in New England, for the only difficulty we find in the Isabella is in its uncertainty of ripening. The great desideratum at present, is to obtain a grape of as good quality which will ripen some three or four weeks earlier. As to the flavor, as well as the bearing quality of this fruit, nothing could be wished for better than we have seen it in New Jersey and Pennsylvania. Numerous seedlings of this and other native grapes have been produced, varying but little from their original except in form; seedlings of the Isabella which we have seen have been almost invariably rounder, or not so oblong. The Concord, Millard, Clinton, Diana, Hartford, Prolific, neither of these are much earlier than the Isabella; the last named one may be considered from 10 to 12 days earlier, as also the Concord and Diana. The Isabella grape may be accelerated in ripening, and produce larger berries by a process of ringing the shoots from the 15th to the 25th of July, upon the last year's wood, but upon the new wood this may be done from the 25th of July to the 10th of August. Vines treated in this manner produce fruit nearly twice its usual size, when girdled nearly or quite an inch in width. The shoot thus operated upon dies, of course, the following winter. But where a ring is taken of only *one-half an inch*, the fruit grows larger; but the bark coming together before the winter, a connection is

made, and the shoots are seemingly not injured. This process was recommended by President Knight of the London Horticultural Society, in 1823. We have practiced it for five years, producing bunches of nearly one pound in weight.

This theory clearly shows the folly of cutting off leaves under the mistaken notion of admitting light to the fruit, and denuding the vines almost entirely, as some ignorant persons do with grapes and melons. In plants the leaves act as lungs in animals. McIntosh says "that the preservation of the leaves on vines, as indeed of all other trees and plants, is of vast importance—indeed so much so that the removal of a single leaf tends to lessen the vigor and energy of the tree." The practice of cutting off the tops of corn stalks as soon as the grain is glazed is still followed notwithstanding the loss of weight in the grain being more than the value of the stalks. If vegetable physiology was more generally understood and believed, that the leaves performed the same part in plants as the lungs or stomach in animals, by exposing the crude sap to the atmosphere, parting with oxygen, and secreting carbon, returning the fluid back to the whole system of the plant, the reason why the tops of corn stalks are, and must be useful in ripening the seeds, would be understood. The wood and fruit of trees and vegetables are matured by the returning sap after it is elaborated by the leaves. If it is not so, how is it, that when a variety of fruit is engrafted upon a wilding, it will produce fruit like the tree from which the scion was taken, and never from the stock on which it is worked? Mr. Knight maintains that the sap of trees ascends in the alburnam or sap-wood, where it makes its first deposit of new wood. This theory led to many experiments. Mr. Williams applied it to the early maturation or ripening of grapes; he found by taking off one quarter of an inch of the bark in width, that the sap was impeded in its descent, the parts above became larger, the fruits swelled, and ripened earlier. This corresponds with our own experience.

This process may be applied to other fruits, the effect of detaining the sap unnaturally in the branches being to force the plants to produce blossom buds instead of leaf or branch buds. It was before known that anything which checked the growth of a fruit tree hastened the production of fruit; it was, how-

ever, reserved for Mr. Knight to show the *causes*, and to submit the whole process to rules as certain as are known in any other branch of natural science. The late Mr. Lowell of Roxbury tried this plan on twenty young pear trees, which had been grafted from ten to twelve years without giving fruit. The branches thus operated upon bore full fruit, while every other branch was barren and unprolific. On some trees he girdled one, and on others two to five branches. He found equal success on plums. Mr. Knight, from whose theory the experiments have been derived, thinks it will shorten the longevity of trees subjected to it. Mr. Lowell, on the contrary, did not apprehend this. He thought that judicious girdling was nearly the same *with grafting* : that produces a similar interruption of the sap ; a callous is formed between the original stock and the graft, and yet we see the branches continue productive and enjoy excellent health.

The Isabella vine suffers more or less every winter. Long shoots of the previous year, and occasionally the whole vine, is what is called winter-killed. Many attribute this to extreme cold. We apprehend that it is invariably produced by the warm days of that season. In this our variable climate at night we have the thermometer at zero, followed the next day by a bright sun with the warmth of spring. Any one may satisfy himself of this who has two vines trained upon a wall or building, exposed to the sun in winter. If he will but take one of these down, and lay it along its whole length upon the ground, he will ordinarily find the one left up through the winter filled with dead wood, while that upon the ground is uninjured. *This does not apply to those grown upon an open trellis, where the air circulates freely.* Now if the sap of trees, particularly the grape, is "always in motion, *at all seasons*, and under all circumstances, except in the presence of intense cold," as said by Dr. Lindley, can we wonder at these results ? "If sap," says the same, (and no better authority can we have), "ever settles to the roots in a visible form, that is owing to temporary causes, the removal of which occasions its instant reascent." That it is the sun in warm days in winter which affects the new growth, is shown by the fact that the morus multicaulis and other half-hardy shrubs and trees, winter better upon the north

side of hills rather than the south. "If you are planting fruit trees," says an "old digger," "don't be so foolish as to set *tender trees*, such as apricots, in warm sunny places, on the south side of walls, fences and gardens; such are, depend upon it, the very spots to kill them—between the extra heat of midsummer and that constant *freezing and thawing* of the trunks in winter, you had better choose a west, even a northern exposure, the latter is much the better in the middle states."

The summer pruning of the Isabella recommended by Downing in his book of Fruits, and which we, in common with him, practiced for many years (which was to cut off every shoot two or three joints beyond the outer branch of grapes), we now believe to be wrong. All the summer pruning which we now give the vines, is to cut off the *laterals* that spring out of the new growth at the base of the leaves near the fruit bud for the following year to *within* one joint, leaving *one bud* to prevent the fruit bud from pushing. Dr. Lindley came out with a paper containing the following excellent propositions, which convinced us of our error:—

"1st. If all the leaves which a tree will naturally form are exposed to favorable influences, and receive the light of a brilliant sun, all the fruit which such a plant may produce, will ripen perfectly in a summer that is long enough.

2d. If all the leaves of a tree are exposed to such influences, all its fruit will advance as far towards ripening as the length of the summer will admit of; it may be sour and colorless, but that condition will be perfect of its kind.

3d. But if all the fruit which a healthy tree will show is allowed to set, and a large part of the leaves is abstracted, such fruit, be the summer what it may, will never ripen.

4th. Therefore, if a necessity exists for taking off a part of the leaves of a tree, a part of its fruit should also be destroyed.

5th. But although a tree may be able to ripen all the fruit which it shows, yet such fruit will never be so large nor so sweet, under equal circumstances, as if a part of it is removed, because a tree only forms a certain amount of secretions, and if those secretions are divided among twenty fruits instead of

ten, each fruit will in the former case have but half the amount of nutrition which it would have received in the latter case.

6th. The period of ripening in fruit will be accelerated by an abundance of foliage, and retarded by a scanty foliage."

"It is a mistake to imagine that the sun must shine on the bunches of grapes in order to ripen them. Nature intended no such thing; on the contrary, it is evident that vines naturally bear their fruit in such a way as to screen it from the sun, and man is most unwise when he rashly interferes with this intention; what is wanted is the full exposure of the *leaves* to the sun; they will prepare the nutriment of the grape—they will feed it and nurse it, and eventually rear it up into succulence and lusciousness."

If in early winter or spring too much wood has been left upon the vines, and too many shoots have been suffered to grow, these may be cut out in July close down to the point from whence they start, taking off the whole branch, fruit and leaves. When the branches in autumn are beginning to slacken in their power of lengthening, it is then right to stop the shoots by pinching off their ends, because according to Lindley, newly formed leaves late in autumn "have little time to do more than organize themselves, which must take place at the expense of matter forming in the other leaves."

Pruning. We find that the best time to prune the Isabella Grape is immediately upon the fall of the leaves in autumn.

Autumn Stopping of the vine shoots is therefore not only unobjectionable, but advantageous; for the leaves that remain after that operation will then direct all their energy to the perfection of the grapes. We have abandoned the old practice of summer shortening, and from some years' experience are perfectly satisfied that we have larger and better ripened fruit.

Thinning the Fruit. The Isabella vine, when in a vigorous state, frequently shows double the number of bunches it is able to ripen in perfection without weakening and lessening the crop in succeeding years; two bunches upon a strong shoot, and but

one on a weaker, should remain. The *outer* bunch or bunches should be taken off. You will by this method obtain larger fruit on those left. Bleeding of the vine in spring is often a source of much anxiety; we have never as yet noticed any bad effects resulting from this bleeding of the laterals, either in the growth of the vine or crop of fruit.

On a visit to Vermont a few years since, in mid-summer, we examined some twenty sugar maple trees, part of them having been tapped in March of that year. We could not see a particle of difference in the length of growth between those from which sap had been extracted and the others. Since that time we met with the remark of the celebrated Duhamel, who says, "This bleeding of the laterals in the grape vine does not seemingly injure the growth or crop of fruit."

J. M. IVES, CHAIRMAN.

FLOWERS.

"Now if thou art a poet, tell me not
That these bright chalices were tinted thus
To hold the dew for fairies, or fashioned but
For spotted moths, and glistening flies,
And humming birds:—for I have learned that there
Are emanations of the indwelling life,
Visible tokens of upholding love,
That are the soul of this wide universe."

—*Bryant, altered.*

If your committee, in discharging their duty, should indulge a little in sentiment, with which flowers more than most other natural objects are invested, it will perhaps be pardoned to the subject. They will endeavor, however, to be practical while speaking of the contributions of flowers and of those who presented them. They therefore respectfully report, that though the collection was not large, it was in the quality of its flowers, and the taste with which they were displayed, truly beautiful and excellent, and considering the violence of the storm that

had so recently torn and disfigured the gardens, the collection of so many perfect and delicate blossoms was not a little remarkable.

The Gratuities awarded were as follows :—

To C. S. Storrow, Lawrence, by Edward Flynn, for best show of Dahlias,	8 00
Mrs. G. L. Streeter, Salem, for a design constructed of native flowers and fruits,	5 00
Mrs. William Ashby, Newburyport, for a floral design called the poet's bower,	4 00
Mrs. Henry Cummings, Gloucester, for pressed flowers,	2 50
Mrs. E. P. Kettelle, Danvers, for moss basket filled with fresh flowers,	2 00
Miss Hattie P. Fowler, Danvers, for a pyramid of seed vessels and plants under cultivation,	2 00
E. S. Williams, Newburyp't, boquet of greenhouse plants,	2 00
Miss Belinda Brown, cases of cultivated and native plants,	2 00
Miss Amelia W. Davis, Newburyport, "Uncle Tom's Cabin" in moss, &c.,	1 75
Mrs. James Perry, Peter Wait and Miss A. Nesmith, Danvers; Miss E. F. Morse, Marblehead; F. A. Bailey, Newburyport, and Fred'k Lamson, Salem, each	1 50
Wm. Huff and Miss Horton, Newburyport; Mrs. B. C. Putnam, Wenham; A. F. Bosson and Mary Watson, Salem; Hannah P. Towne, Middleton; Mrs. A. Lackey, Marblehead; Robert R. Smith, Dr. George Osgood and Miss S. S. Leroyd, Danvers, each	1 00
Miss A. M. Smart and Mary S. Leavitt, Danvers, each	50
Mrs. James Lowrie, Danvers, pot-plant,	75

Next to Danvers, the place of exhibition, Newburyport furnished the largest number of contributors. The floral department was much indebted to Mr. Storrow of Lawrence, for upwards of 300 blossoms of dahlias representing about 160 varieties, arranged upon stands sent in with the flowers, which set them off to advantage, besides which he presented showy collections of gladiolus, salvias, verbenas, &c.

The floral designs were few, but all tastefully executed. In our judgment the most exquisite taste was displayed both in conception and execution, in the moss basket filled with choice flowers, by Mrs. Kettelle of Danvers, and in a wreath of Japan lilies upon an evergreen base, by F. Lamsom of Salem. Not a little skill and taste are required in the arrangement of a boquet. The heaths and fuchsias of Mr. Williams furnished a fine example of the grace with which that common form of display is capable. The "poet's bower," by Mrs. Ashby, was rendered very brilliant by the numerous immortal flowers with which it was embellished. The great variety of wild fruits, flowers and mosses in Mrs. Streeter's design, commended it as a work of much labor both in the collection and construction; the arrangement of the spiranthus flowers upon a spiral base of evergreens was a pretty idea, and much credit is due for catching the hint from the manner in which that genus sets its own flowerets upon its stalk.

Floral designs may be clothed with both beauty and grace and thereby preserve the integrity of their airy origin, or they may be so made as to suggest no idea but that of art alone. Flora is a graceful goddess, and throughout her multitudinous works she has never been detected in cutting a square corner, and she cannot look with favor upon any fancy-work that might not wreath her brow, fill her basket, adorn her altar, or dress a bower for her throne. Here perhaps we may remark, that any distortion of nature in these devices will always fail of success. The fair goddess is not under the necessity of borrowing but from the sun and the rainbow, wherewith to highten her charms.

The pot plants were altogether too few, and it is to be hoped, particularly when the fair is held in the neighborhood of so many green-houses as abound in Salem and vicinity, that growing plants may be sent from thence, together with some of those showy specimens that adorn the parlors and sunny window-seats of less floral pretension; a few lofty oleanders, fuchsias, &c., would fill the back ground with great effect.

Dr. George Osgood of Danvers, well known as a zealous botanist, exhibited plants that were mostly noted for their medicinal properties. There was much to learn in the lofty pyramid of fruits and seed vessels of native trees, shrubs and plants,

all of which were under cultivation, from the grounds of S. P. Fowler of Danvers. Among them we noticed berries of the tree cranberry, buckthorn, red and white actea; also the curious seed vessels of the magnolia glauca and tripetala, Dutchman's pipe, Jersey wax-berry, and the brilliant red berries of the prinos verticillatus, a shrub allied to the holly whose "vermil clusters" remain long upon the branches, after the frost has dismantled the forest, and by the roadside and coppice they may be seen "twinkling in the ice" throughout the entire winter.

The verbenas of Mrs. Putnam of Wenham, were very brilliant. The dahlias of Mr. Huff were largely of the tipped varieties, and those of Mr. Bailey were dwarfs. The wild plants exhibited by Misses Laroyd and Brown, were mostly of the composite order, and were the best the lateness of the season afforded; they were of the deepest shades and were arranged with much taste. Conspicuous among them were Bryant's immortal gentian "colored with heaven's own blue;" also the feathery seeds of the graceful clematis; but when "Autumn flings o'er many a tree its brilliant robes of red" a great variety cannot be obtained,—the more elegant of the wild flowers then yield up the field in dismay, and those that remain scarce tender us one whiff of fragrance.

> "The wind flower and the violet, they perished long ago,
> And the brier rose, and the orchis died amid the summer's glow."

We cannot close this part of our report, without noticing the pictured boquet of pressed flowers prepared by the delicate manipulation and watchful care of Mrs. Cummings, and though we have pressed thousands of plants and flowers, we are much at loss to understand how the natural tints of the blossoms were preserved. As the pressing and drying of plants in herbaria serves to fix and perpetuate the knowledge of plants, we awarded the contributor a gratuity.

When we had performed our duty of inspection, our self-complaisance was somewhat disturbed by our discovery in the vegetable department of a magnificent cauliflower, which forcibly reminded us of the words of Dr. Johnson,—"Of all the flowers in the garden give me the cauliflower," after which cir-

cumstance, from all parts of the fair grounds, the reproachful words seemed to come up in mockery of our part of the show, "Of what use are flowers?" The horses tossed their flowing manes and seemed to neigh it, the cattle lowed it, the fowls fairly crowed us down, and the mammoth squashes puckered up great laughing faces at us in derision of our fancy; and our equanimity was not fully restored till we had thought over the many fine things which had been said of flowers by men of refined taste and feeling, as the pious souls in olden times were wont to repeat texts of scripture to keep off evil spirits:—

"What God hath made and meant to charm, let no man despise."

"If nature is great in great things, she is very great in little ones."

"Beauty nestleth in the rose bud, and walketh the firmament with the planets."

> "Blessed be God for flowers,
> For the bright, gentle, holy thoughts that breathe
> From out their odorous beauty, like a wreath
> Of sunshine in life's hours."

Some persons affect such an "excess of virtue," that it becomes "kindred to vice;" we hope, however, they are few to whom the following words apply:—

> "What you grasp not, does not exist for you,
> What you count not, most surely is not true,
> What you weigh not, devoid of weight you call,
> What you coin not, won't pass with you at all."

We are glad, with greater truth, to say—

> "There never yet hath lived the man utterly beggared of the beautiful."

We read that when the world was fairly made and vegetation had overspread its surface, the first great want was for a "man to till the ground," and when that magnate was created, he was placed in a garden (not a wilderness) which brought forth every tree that was "*pleasant to the sight*" and good for food; the idea of beauty being suggested in the text before that of utility, nevertheless, we know man must be fed, but "not by bread alone." We will proceed with our subject by asking, What are flowers, and why regard them?

> "How they grow no man knows,
> They spring, they bud, they blossom fresh and fair,
> And deck the world with their rich pompous shows."

A small polished casket containing within itself the tender germ of a plant is dropped to the earth from the prolific capsule of its parent, where, vivified by the sun, it soon bursts its hard covering, thrusts its feeble root into the soil and erects to the light its slender stem; day after day and week after week, leaf is added above leaf, as its stem and branches elongate upwards and outwards; every new born leaf being made after one and the same model, till at last a bud appears, perhaps many such overspread the plant; in due time the day of its advent arrives, the morning sun bursts the swollen bud, whereupon a new form of leaves, of most exquisite workmanship, entirely unlike the green leaves that hitherto clothed the plant,—of the most brilliant hue, and in the most regular manner—expand to our view and fill the air with their perfume. How common is this sight, and yet how wonderful!

> "From the root
> Springs higher the green stalk, from whence the leaves
> More airy,—last, the bright consummate flower,
> Spirits odorous breathe."

> "Men gaze upon its loveliness, and lo!
> It is beautiful exceedingly."

Not for beauty alone glitters this delicate mantle; it comes and protects other organs of more complex form than any hitherto described and which are destined for an especial purpose. They are generally of different tints from the corolla that surrounds them. Here it is that the plant celebrates its nuptials, and here it is that scores, hundreds, myriads of miniature plantlets are fashioned and packed away in enamelled or otherwise ornamented cases for the future propagation of the species. These peculiar organs which serve so important a purpose in the economy of the plant, by their universality and variety, were long since discovered to be a key whereby could be arranged the whole vegetable kingdom, and though now less exclusively relied upon for that end, they will ever remain a prime feature in every human endeavor to trace the natural order, or grand creative thoughts that fashioned the vegetable world.

All plants have flowers or their equivalents, the precursor of their seed. A knowledge of flowers, therefore, is inseparable from a knowledge of plants, which all must admit is of the first

importance. For to the vegetation of the earth do we trace all our comforts; upon the vegetable fleece which clothes our common mother earth, do all men and animals live. Where, then, but for plants, were our fat cattle and our fleet steeds? and where our sheep for our broadcloths and mutton? where also our plump cheeses and our cones of yellow butter, fragrant with clover blossoms and the marrow of grassy panicles? Where were they all, but for plants and flowers? We ask not of Dr. Johnson then, even in an utilitarian point of view, any apology for flowers, or for our regard for them, be they gaudy or diminutive; for those of the parterre or pasture; for those that precede the luscious fruits of our trees, or spread themselves so blandly among the rampant vines that yield us crook-necks, marrows and pumpkins, or for those that "blossom from out a cracked tea-pot" on some humble window-sill, or that hang from the glazed rafters of the rich man's conservatory,—for all flowers, from the snow-drop and crocus that feel the first breathings of spring, to the last bunch of yarrow that still elevates its face to the skies, and receives the falling flakes that mark the dominion of winter. Ministers of good are they all, promises to man that a harvest shall quickly follow the tender they make to light and its Author, by their shining apparel and the fragrance of their dewy nectaies.

Is there any better method of commencing the acquisition of this knowledge, than by forming acquaintance with the trees, shrubs and smaller plants of one's own country? For among these exist in greater or less nearness, types of the vegetation of the world—a centre or starting point is at hand, which radiates to the ends of the earth, the circumference thereof embraces every plant "whose seed is within itself."

So far as the cultivation of flowers is concerned, there has been in our day, a vast improvement both in variety and magnificence over those cultivated a generation ago. All parts of the world have been explored to add new attractions to the green-house and flower border, where we have an example of universal brotherhood assembled from every nation under the heaven, the like whereof is unknown to humanity In this desire for new and ever-varying forms, are we not in danger of becoming altogether too fickle and wavering in our taste?

True taste lies in a keen perception of nature. A flower should be esteemed less for its rarity than for its intrinsic beauty.

> "Beauty is truth, truth beauty, that is all
> Ye know on earth, and all ye need to know."

A beautiful thing is forever a beautiful thing, and in no wise subject to fashion or caprice. We like occasionally to renew acquaintance with the old flowers, (we will not call them old *fashioned* flowers) that our grandmothers used to cultivate; most of them were truly beautiful, notwithstanding our long familiarity with them. The lilacs, hollyhocks, lupins, daffodils, poppies, four-o'clocks, marigolds, and morning glorys that once adorned the garden-walks of the old mansions, are capable of great improvement. We are indebted to the boquet from Middleton for some of those suggestions that seemed to cluster round its central branch of hollyhocks. The hollyhock is susceptible of great variety; it belongs to a family of plants altogether too much neglected; when the plants are not grown thickly they are of good form, and although the flowers cannot well be plucked upon stems, they still make a fine show when placed in shallow dishes of water. A bunch of lilacs revives the memories of youth, and we never suffer "'lection week" to pass without plucking at least one thysrus, and enjoying its fragrance. How refreshing are the reflections which we derive from youth and spring time, when the "Maple bursts into a flush of scarlet flowers," and the columbines and anemones peep from the springing grass or crest the mossy rocks.

> "It is like a beguiling music,
> And we wonder not that we loved, as now,
> To hunt for violets in the April time."

Have we not in flowers that bloom in every clime and toss their fragrance into every dwelling place of humanity an evidence of their great Authors' love of beauty and thereby authority for the embellishments of life, and we should ever learn to add grace to mere utility, by throwing over all our inventions the lighter robe of beauty, as expressed in form and color.

Flowers never seem out of place; they attend the checkered path of life, from the cradle to the grave, and at all times reflect the sympathies of man. They are present at our festivi-

ties, welcome at our solemnities, and inspire hope and comfort in the hours of sorrow and distress. We do well to learn

> "How with tree and flower,
> In converse sweet to pass the hour
> As with an early friend."

No other simply beautiful thing is endowed with such a breadth of sentiment; the plumage of birds is beautiful, and their songs delightful, but neither of them could find a place in the heart of the mourner, and at other times they might produce satiety and weariness. Even the few superstitions that are attached to flowers are some of them very beautiful:

> "I would give you some violets,
> But they withered all when my father died."

Again, how flowers are inwrought into all the arts and embellishments of life, from the lofty architectural ornament to the sprig on a youth's vest. Many persons who have neither the taste or inclination to cultivate flowers, surround themselves with representations of them, upon their carpets, tapestry, clothing and ornaments. The story of flowers and their effect upon the heart and the well-being of man has not been half told.

The memory of some men is intimately attached to particular flowers. Some are called after their names, while others more directly appeal to our sympathies. Who is not reminded of the lamented Kane when he sees the vernal saxifrage cresting the mossy rocks in early spring; this little flower or a species scarcely dissimilar, was one of the last flowers to quit the Arctic voyager's weary track. Or who can gaze upon the brilliant escholtzia without thinking of the melancholy fate of Douglass, the botanist, goaded to death by wild buffaloes in a strange land? And while those recent and hardy additions to the shrubbery and garden, the wigelia and dieletra spectabilis shall be cultivated, the name of Mr. Fortune, who introduced them from China, shall not be forgotten.

Ever present flowers, to what a noble ancestry do they belong! Whose hands have not plucked them, and whose gaze have they not reflected? Wise and holy men have drawn from them inspiration and inculcated moral lessons. Kings and

magnates of the earth have regarded them, and been honored by their presence. Poets of all time have wreathed their harps with them and sang to their praise. Unquarried rocks and beds of fossil coal, deep in the bowels of the earth, hold in their crystaline embrace the flora of an ante-deluvian world.

> "O, there is not lost
> One of earth's charms; upon her bosom yet
> After the flight of untold centuries,
> The freshness of her far beginning lies
> And yet shall be."

But to become more practical; in this desire for variety above alluded to, which is certainly most praiseworthy and should be gratified, why do not florists as well as botanists oftener draw forth from their quiet retreats in the coppice and meadow, the beautiful and fragrant plants (not a few) from among our native wildlings, that they in their simple purity might adorn our borders and mingle their sweets with the pampered and often deformed aliens that usurp the entire dominion of the flower garden; which exotic plants not a great while since in simpler garb, embellished the wilds of the lands, where they were originally native.

What shrub can be found more fragrant than our clethra, or more beautiful than our laurel? What plant more curious than the side-saddle flower, and the whole world of flowers may be "challenged to excel the intense red of the lobelia cardinalis." American plants are greatly esteemed abroad; that section of the English gentlemen's grounds designated the "American Garden," and which contains our magnolias, kalmias, azalias and smaller plants, is one of the chief attractions of those often extensive domains.

What a field is opened here also for ingenious fancy and scientific acumen, in the crossing of our wild plants with kindred species among the exotics of the garden, the unions whereof would undoubtedly result in the production of hybrids of new and singular forms, that no eye has yet beheld, thereby rewarding the skill and ingenuity of man, with the gift of new creations. To persons at all intimate with our native flora, numerous alliances will readily suggest themselves as among the probabilities of success.

We need not go out of our native county for novelties or magnificence in this department. Flora has honored Essex county above many a milder region that lies between us and the middle states, in the magnolia, that with such prodigality scatters its fragrance throughout the swamps of Essex and Gloucester. Danvers too is noted among botanists for localities of the mountain cranberry and the little draba verna.

> "The first gilt thing,
> That wears the trembling breath of spring."

Neither are we at all behind other sections of the country in men of zeal and attainment who possess the keenest perceptions of nature's charms. The learned and venerable Cutler, the genial Nichols, and the devoted Oakes have left the savor of their names behind them and lie where the trefoil dallies with the breeze and scatters far and wide its perfume. The living are in one way and another telling their own story. To a son of Essex belongs the honor in which few have ever shared, of rearing from seed to adult and regal splendor the Victoria regia, and of adding a magnificent volume upon that subject, to the botanical lore of the country. Others have done much to introduce and propagate new and rare plants or otherwise to disseminate a taste for gardening and the study of botany, and in this connection it may not be amiss to mention the great success that has attended the field meetings of the Essex Institute, in diffusing a taste for botanical and kindred pursuits in a manner worthy of imitation in other counties.

The embellishment of our cemeteries not only with deciduous and evergreen trees, but with shrubs and flowering plants, is a delightful feature, and one which marks the times in which we live. The freshness and bloom that now surround the habitations of the departed, rob the grave of much of its gloom and bespeak of peace and immortality beyond.

However we may regard them, flowers will never cease to be admired. Seals are they of Divine stamping, "the finger of God is upon them all." Everything that waves in the breeze, or pays the tribute of its bloom to the sun, is worthy of our love, particularly the tall old trees that have for generations shaded our ancestral homes, and the shrubs that border our na-

tive hills, and the plants that spring around the thresholds of home; all who heed the still, small voice of their teachings shall lay up treasures of memory for the drafts of after years. They shall honor the father and mother that bore them, and the land that gave them inheritance. The auriferous sands of California shall not tempt them away from their farms and firesides and the defence of all that New England holds dear. The commandment with promise shall be theirs, their heads shall bear the silvery crown—reward of years, and their children shall call them blessed, for without invidiousness they will undoubtedly have one "flower in the family," and when their eyes are dim with age, little children shall place the butter-cup to their chins to see if they still have a relish for dairy products, and a pansy slipped into their bosoms shall revive the sweetest memories of by-gone days. And when they die, as the lessons of nature and grace shall one day make them willing to, the near and dear shall place the sod over them, and the violet—emblem of virtues that still blossom in the dust—shall look heavenward from their graves to its kindred azure above; and the sun—parent of flowers, shall at morning and evening, daily and forever, gild the place of their sepulture in the land of their fathers.

GEORGE D. PHIPPEN, CHAIRMAN.

VEGETABLES.

The Committee on Vegetables, consisting of William R. Putnam, George Wheatland, Augustus Story, William F. Wade, Aaron Low, Frederick Burnham, and Herman Phelps, submit the following report:—

There were sixty contributors from eighteen towns in the county. It is not easy to see why in the midst of a population so extensively engaged in raising vegetables, so few should have

been exhibited. They award the first premium for the largest and best variety—

To S. A. Merrill of Salem,	$10 00
The second to Joseph S. Leavitt, Salem,	8 00
The third to William Huff, Newburyport,	6 00

Mr. Merrill exhibited 88 varieties; Mr. Leavitt, 34 do; Mr. Huff, 31 do.

To the Natural History Class of Danvers, for two tastefully arranged cornucopias, and collections of native flowers, a gratuity of $6 00.

To Robert W. and W. H. Putnam, of Danvers, for a skillfully arranged basket of vegetables and fruits, a gratuity of $3 00.

To James Manning of Hamilton, for carrots, celery, onions, turnips and potatoes, $1 00.

To Adam Nesmith of Danvers, for squashes and onions, $1 00.

To Munroe Brigham, for squashes and tobacco, $1 00.

The committee have some doubts in regard to giving gratuities for large squashes or tobacco, but the pleasure which the visitors at the hall manifested in viewing the large squashes, we think justifies us in giving a few dollars to those who exhibited them. Although in one respect they are not of any practical value, yet we think it an innocent gratification of the public taste. We bring the largest of our flocks and herds to the fair, and why not the largest of our vegetables?

The views of the chairman in regard to the use which the Trustees intended should be made of the $76 placed in the hands of the committee to be given in gratuties, are different from those of some of the committee. If he rightly understands the object, it is to induce people to exhibit their vegetables so that we may learn what others raise. We require no statement, we expect each one to bring that which he thinks best. In the hall we wish to make an exhibition of our vegetables, which gives those who visit it an opportanity to solicit seeds from such as exhibit them. In our offers for root crops, we require particular statements in regard to the manner of cultivation; in this way we diffuse the necessary information.

The tobacco exhibited by Mr. Brigham attracted much notice. Since the maggot has made such havoc with the onion crop, some of our best cultivators are turning their attention to tobacco as the most profitable crop which they can substitute. On lands which have cost three or four hundred dollars per acre, the common farm crops cannot be very advantageously grown, but we hope our cultivators will find some crop that will remunerate them, that is more conducive to the happiness of society than this filthy weed.

To Robert W. Putnam of Danvers, for basket of St. Helena potatoes, $1.00.

This is much like the winter kidney, formerly grown in this vicinity; it is a good table potato and is not so liable to rot as many kinds.

To Daniel Buxton, Jr., of South Danvers, for good specimens of the Hubbard squash and well ripened onions, also good specimens of white popping corn, $1.00.

To William Walcott, South Danvers, for large French squash, $1.00.

To Uriel Dodge, Beverly, for variety of vegetables, $1.00.

To William H. Foster, Beverly, for 13 varieties of vegetables, $1.00.

To A. Lackey, Marblehead, for 17 varieties of peas, and other vegetables, $1.00.

To E. T. Andrews, Wenham, for squash,	1 00
Jonathan Berry, Middleton, for corn,	1 00
William Osborn, Lynn, for corn and wheat,	1 00
William Barton, Salem, cauliflowers,	1 00
A. L. Moore, West Newbury, potatoes,	1 00
F. Burnham, Manchester, potatoes,	1 00
Aaron Low, Essex, one dozen squashes,	1 00
Jane H. Dole, Newbury, catsup,	1 00

The question is often asked which is the best kind of potatoes to plant? By reference to the early records of the society we find that in 1823 the Trustees offered premiums for the best potatoes raised from the apple or green ball, in the hope as they say, that some new sort might be obtained superior to those generally cultivated. We well remember some of the kinds

that received the premiums in 1825--26. For a few years they were very productive, and good for the table, but most of them became worthless. We find the same facts stated by Timothy Pickering in the early Transactions of the society. He says, "that all good kinds degenerate both in this country and in Europe, hence the importance of getting new kinds from the seed." If this was the case before the rot made its appearance, we think it is emphatically true now. The experience of most persons has taught them that the kinds which they planted a few years ago are worthless now. We often hear it said in favor of some new kind that they do not rot; this may be true for the past, but it is no surety for the future. Although we get our best potatoes from the north, yet when planted here they soon become poor; while those that are brought from the south improve in quality. From our observation the past year we know of no kind preferable to the Davis seedling. The Danvers seedling or Bradstreet potato, has been a productive kind; when planted early upon warm land it is of middling quality, but requires a long season to ripen it fully.

The price of potatoes has been so high for a few years past that they cannot be profitably raised for stock; hence it is important to raise those good for the table. The Carter is one of the best potatoes, when it can be grown without being affected by rot or blight, but it is not so hardy as the Davis seedling. The same may be said of the Jackson white. We have noticed several pieces of land the present season where these two kinds were planted side by side; the vines of the Davis continued green long after the others were killed. We have often heard it remarked that those potatoes that were planted deep did not rot so badly as those that were near the surface; but our own observations have led us to the opposite conclusion. We find the most rot at the bottom of the hill, and it shows itself first on the under side of the tuber. Thus it is with most theories about the potato rot,—the observations of one year are contradicted by those of the next. If there is any point settled about the rot we think it is, that a dry loose sub-soil is much better for potatoes than a damp hard one. We would recommend more attention being paid to raising potatoes from the seed. Some good instruction upon this subject may be found in

the early Transactions of the society, in the offers for premiums in 1826, which we here quote :

"In 1823 the Trustees offered premiums to encourage farmers in Essex to plant the seeds formed in the green balls, in the hope that some new sorts of potatoes might be obtained, superior to those generally cultivated ; and at the last exhibition—in October, 1825—they were gratified with the sight and taste of several new sorts, meriting the premiums. But believing greater improvements to be very practicable, they have renewed the premiums. And to prevent errors and mistakes in prosecuting experiments, every intended claimant is desired to take notice—

1. That seeing the seeds in the same balls will produce various sorts of potatoes, it will be indispensably necessary that each young plant grows at the distance of eight or ten inches from any other.

2. That in autumn, or as soon as the vines or stems of the plants die, and the young potatoes are dug up, those of each plant are to be saved by themselves ; and it will be easy to put each sort in a separate paper bag. These potatoes will be very small, perhaps from the size of a pigeon's down to that of a sparrow's egg.

3. In the ensuing spring, the potatoes of each sort, that is, the potatoes in each bag, must be planted by themselves, and if not in distinct rows, then stakes driven into the ground should mark the divisions of the several sorts in the same row, leaving a space of about two feet between one sort and another, to guard against any mixtures.

4. In the time for harvesting them, in the second year, the potatoes if grown in a good soil will be large enough to be boiled, to ascertain their quality. Each sort must be tried by itself. Such as are watery or ill-flavored may at once be thrown aside, for the use of live stock. Every other sort, so valuable as to be thought worth cultivating, must be kept unmixed, by putting each kind into a separate bag, box or cask. Some

farmers may think the exactness above proposed and required to be unnecessary. But let each recollect that these experiments are proposed, not to gratify curiosity, but to obtain several sorts of potatoes of superior excellence, to be imparted from farmer to farmer throughout the county; of whom some may prefer one improved sort, some another, for their own tables and to supply their customers in the market towns, who may have like preferences. Such exactness in keeping the products from each original plant is the more necessary, because they may possess very different qualities from the products of other plants, which may have the same appearance in size, shape and color."

CORN. Several kinds were exhibited. Mr. Osborn of Lynn presented some of the King Philip Corn; this is the same that has been grown in the county for the last 25 years, but having passed through the patent office it received a new name. It is eight-rowed, of a brownish color, it ripens early and is productive.

We noticed some good specimens of Whitman, or Plymouth county corn; this is of a smoky white color, eight-rowed, and very large kernel. We think this can be raised cheaper than any other kind; it matures early so as to escape the frost, but it requires much drying to keep it free from mould. The stalks are short and are eaten by cattle better than others, owing to their being soft. This is probably the reason why it falls down so badly in the fields, which is the greatest objection we have ever found to it. It sometimes fails to vegetate.

It is an important inquiry to settle, as to how much difference there is in nutriment between a bushel of kernels of corn which are large and contain much flour or starch, and the small hard kernels which abound in volatile oil, which can be determined only by careful and long continued experiments.

We noticed some specimens of the Rhode Island premium corn; this is much like the King Philip in color, it is smaller, and is recommended because it produces two and three ears upon a stalk.

There was some good Dutton or twelve-rowed corn shown, but we prefer the eight-rowed. The cob of the twelve-rowed

is large and difficult to dry, and we have always found more poor ears among it than among the eight-rowed.

There were some samples of spring wheat exhibited; that by E. G. Berry was very good.

WILLIAM R. PUTNAM, CHAIRMAN.

LETTER OF N. PAGE, JR., ON THE ROBIN AS A DESTROYER OF FRUIT.

FRIEND SECRETARY:—I promised to give a few facts in relation to certain persistent fruit-thieves—the *robins*, and as I cannot speak very well of them, or their manner of living, perhaps I ought to say nothing. Indeed it is really dangerous for a wee bit of a gardener to set up his pretensions to a claim to the fruit he cultivates, against that most honored and aristocratic bird, the robin. To any one who reads papers, agricultural, horticultural, or otherwise, it is evident that the bird in question has as many friends as a candidate for the presidency, and possibly most of its extra fine qualities are equally imaginary.

Many writers tell us that, if we would protect our fruit from insect depredators we must spare the birds. That is excellent advice if not too closely or blindly followed. The robin is an *exception to the rule.* I know what I affirm, and have a wholesome fear of the *New England Farmer.* I remember the words of a correspondent, "T. A. S." in the July number of that excellent monthly, and I make one or two extracts, because they express somewhat prevailing opinions and feelings in a comprehensive manner.

He writes—"It is strange that after so much dissemination of a broader, deeper and more benevolent philosophy in regard to the value of the 'sweet warblers of the grove,' that there should be any person living under the influences of a gennine

New England rural home, who can deliberately advocate the destruction of birds, especially 'robin red-breast.'" But in spite of all this "broader, deeper, and more benevolent philosophy," the robins do destroy our finest fruits in quantities twenty times greater than would all the insects *which they devour*.

The same writer tells us that, "the robin is well known to be the consumer of a vast multitude of worms, bugs, beetles and curculios, which if left without check would destroy fruit far more valuable than 'cherries.'"

But I may be permitted to say, without any disrespect to the writer, that, of the robin when living in our gardens we do not know any such thing as he asserts. In places where but few have been "spared," or where apples, peaches, and plums are the only fruits grown, it may, from absolute necessity, keep to its primitive habit of feeding upon worms, and sometimes bugs and beetles.

But here, "under the influence of our genuine New England rural homes," robins have become more enlightened and refined in their habits and tastes. During at least four months of the season they feed almost wholly upon the best of our fruits, varying their diet occasionally by taking a few earth-worms—those active and useful pulverizers of our clay soils. But from the time the first strawberries are ripe in June, until the last grapes are gathered in October, I would as soon expect to see our society's secretary making a meal of "bugs, beetles and curculios" as these same robins. No, they seldom make such a mistake as to pay in any way for the fruit they eat.

As facts are of far greater value than mere assertions, I will give a few from my own experience. For four or five years I have cultivated several kinds of fruits for home use, and for market. I never would allow any bird to be in any way disturbed on my premises, and as there were many orchard trees near, and most people in the neighborhood were careful not to annoy the "warblers," I soon had plenty of robins. My account with them may be thus rendered: Offsetting the pleasure of hearing their first welcome notes in spring, and the enjoyment of seeing them build their cottage homes, with the displeasing sight of their constant bickerings and ever-recurring

quarrels among themselves and neighbors, together with the discordant sounds of their noisy scoldings of every person who lives and moves in the same garden; then, after stating the unimportant fact of their eating angle-worms, there is little more to be said pro or con, for a time. About the middle of June we find them engaged in the delightful task of eating and carrying off our first ripe strawberries, price *fifty cents per quart.* For about four weeks they continue eating and carrying away with a perseverance seldom equalled, and an appetite never known to be satiated. All over two acres of vines they will search for the largest and best berries, and so certain are they to find them, that if I would save any extra specimens to exhibit, or for the seed, it is necessary for me to cover them while green. The robin tax upon my strawberries is several times larger than my *town, county* and *state tax.*

I do not attempt to grow cherries, although but for the robin nuisance, it would be very profitable for me. Some of my neighbors who do try it, oftener get a large amount of *vexation* than a mouthful of *well-ripened cherries.* For three years I had a few rows of raspberries. By experiments I found that if they were left a day without watching, the robins would take from *eight* to *twelve* boxes out of *twenty-four*, and a larger proportion when there were fewer berries. I charge the robin with stealing from me two or three dollars per day through the raspberry season. For three years I could not get four boxes of ripe gooseberries. From the same bushes I now get a bushel and a half by picking them while green.

The robins force me to gather all my currants before fully ripe; but earlier than I can gather them, they lay a tax upon them of about twenty per cent., and they never have failed yet to collect the amount in full. One would think I might be allowed a dish of plain white currants, fresh from the bushes every day for a month. But no—there are a dozen nests of thieves near, and word comes from all directions that I must not interfere. If they had half the musical talent of the merry bobolink, we might hear them singing every day, "Free plunder and robins' rights," and "He's a fool who thinks to keep his fruits without powder, shot and gun!" I do not cultivate blackberries, but last season I saw an otherwise respectable

nurseryman, endeavoring to cheat the robins of their dues by tying millinet over his best clusters.

The same man accused them of stealing his pears and leaving only the *cores* upon one of his trees. But I believe they have never taken even a Rostiezer from me. I have several grape vines somewhat exposed, and whenever a berry begins to ripen some robin's thievish beak is in it directly. The truth is, the domesticated robin is not an *insectiverous* bird, but *fruit*-iverous. In addition to the fruits that I have named, it devours all kinds of wild fruits from a blue-berry to a black cherry, and after that it will eat all the berries from the ornamental shrubs and trees in the garden.

It may be said that we can protect our fruit from robins without killing them, but I know of no effectual method. I have saved some grapes by spreading nets over some of the vines, but I cannot cover them all, nor is it entirely practicable for me to keep three or four acres of other vines covered with nets all summer. The talk of *frightening away* robins when they are very numerous, is mere nonsense. Make ever so threatening show of tin, or glass, or wind-mills, or old clothes, and wait the result. After one day the robins *won't scare*. A few years ago one of our worthy fruit growers, with ready tact for expedients, hit upon the plan of placing a *stuffed owl* in his garden. He posted his guard with full confidence that a wide circle would be protected. Soon after a shrewd old robin was discovered perched upon the very top of the *owl's head;* the two great awful eyes of the terrible bird staring from under: Our friend must of necessity submit to this mortifying defeat, but he did not hear the last of it for some days. We may burn crackers, explode torpedoes, or fire guns, and all will be of no avail. If we shoot one robin the others may fly away, but they will be back in a minute vociferously shouting something which sounds very like "ain't dead! ain't dead! ain't dead yet!" and soon be devouring our fruit with a voracity perfectly astonishing.

Give to the robin the grass farm and the apple orchard, but *how shall we keep them out of our fruit garden?* Perhaps the best method may be for the owner to prevent them from building nests in his garden, and to shoot, early in spring, those that

continually visit it from the neighborhood. By waiting until the fruit is ripe he must kill three or four times as many, old and young. By a law of the state there is a penalty of one dollar for each robin killed after the first of March till September. Probably that could not be enforced upon a man, who shoots robins only on his own grounds while destroying fruit; but it is more humane to kill a less number earlier in the season and before any unfledged ones would be left in the nests to perish, and pay the penalty, if any justice should be so unjust as to require it. The law which provides, that every person shooting at, or killing birds "upon land not owned or occupied by himself, without license from the owner or occupant thereof, shall forfeit and pay" ten dollars in addition to actual damages, is not too severe.

The moral law against the wanton and unnecessary destruction of any bird or other living thing, has far greater penalties. The hardness of heart that for mere sport or pastime would permit one to take the life of any living creature, is despicable, a serious misfortune to its possessor as well as to the community. Although a man may find it necessary sometimes to kill robins, that is no reason why he should favor, or allow of, an indiscriminate slaughter of other birds. Nor would a man possessed of any strength of moral feeling or human sensibilities, permit his children or others, wantonly and needlessly to destroy robins. But it can hardly be proper or right for us to permit comparatively useless birds or animals to waste valuable productions of the soil, to such an extent as robins do our fruit. We should also be reasonable and not too partial in the protection we give. My neighbor, who will at any time kill a chicken for thirty cents' worth of meat, ought not to object to my shooting a robin to save three dollars' worth of fruit. He may choose to feed upon chickens, ducks, turkeys, geese, lambs, calves and bullocks,—every domestic fowl or animal that he has taught to expect and depend upon his protection,—but I prefer that when practicable my food should be mostly bread and *fresh home grown fruits*. And if he can kill a happy, playful, innocent and affectionate lamb, without injury to his moral nature, how can it be so very wrong for me to shoot a pestiferous robin?

In conclusion let me say, that although the robin does much harm, and little good, to the fruit-grower, the very reverse is true of most other birds. Let wrens, sparrows, bobolinks and all the swallow family be especially protected. If some person thoroughly acquainted with the wants and habits of these birds, could be induced to publish some short, plain and practical directions how we can best aid in increasing their numbers, and how we can induce them to stay near our houses, he would deserve and obtain the thanks of the whole community. Will not the Essex Agricultural Society offer a premium for such an essay ?

Danversport, September, 1858.

CARRIAGES.

The Committee on Carriages report :—

That a four-wheeled chaise, the only one exhibited, was manufactured by Nichols & Thomas of West Newbury : they award them the premimum of $10.00.

No carryall or two-wheeled chaise was exhibited.

A very substantial and well finished ox-wagon, by Amos Brown of Danvers, was the only one offered. They award him the premium of $10.00.

No other carriages were offered for which the committee were authorized to award premiums. Four covered wagons were exhibited ; the committee recommend a gratuity of $5 to D. Bradbury of Wenham, for the best covered wagon. Four open business wagons were also on exhibition ; they appeared like substantial articles and well made. A small wagon, to be drawn by hand, was exhibited by William C. Cook of Danvers, the committee recommend a gratuity of $2.00 to Mr. Cook for his skill in its construction.

PATTEN SARGENT, CHAIRMAN.

CLOTH AND HOSIERY.

The Committee on Cloth and Hosiery have attended to their duty, and make the following report :—

In the department of woolen goods the exhibition was not so full as usual ; the only goods exhibited were from the establishment of Messrs. N. H. Horton & Co., Brookdale, South Danvers. The committee have awarded—

To N. H. Horton & Co., South Danvers, woolen goods, 1st premium,	$5.00
N. H. Horton & Co., do., Rob Roy checks, gratuity,	2 00
Mrs. R. Jacobs, South Danvers, 4 prs woolen hose, 1st pre.	2 00
Jane H. Dole, Newbury, 4 pairs woolen hose, 2d pre.	1 00
Mrs. Taylor, South Danvers, a lady 72 years of age, 4 pairs men's half hose, premium,	1 00
Mrs. Elizabeth Grant, a lady 86 years of age, cotton hose, gratuity,	1 00
Mary R. Kimball, Salem, silk hose, gratuity,	50
Mrs. Mary Taylor, So. Danvers, 4 pairs mittens, gratuity,	50
Jane H. Dole, Newbury, worsted sleeves and scarfs, "	1 00

AMOS MERRILL,
SAM'L G. JONES, } COMMITTEE.
FRANCIS SCOTT,

CARPETINGS, RUGS AND COUNTERPANES.

The Committee regret to say that the display of Carpetings was very small. Two pieces only being exhibted, by Mr. G. A. Tapley, to whom the committee award a gratuity of two dollars.

The display of hearth rugs and braided mats of home manufacture was large and good. The first premium of $3.00 was awarded to Mrs. Charlotte Woodbury of Beverly, for two

wrought hearth rugs; and the second premium of $2.00 to Mrs. L. S. Preston of Danvers, for braided mats.

Gratuities were awarded as follows:—

To Mrs. Sally P. Wheeler, South Danvers, for a very handsome rug,	$2 00
Mrs. Sally Choate, Rockport, 82 years of age, for a very fine braid mat,	1 00
Mrs. Roxanna L. Trask, Danversport, for braid mat,	2 00
Mrs. E. P. Caswell, Wenham, for braid mat,	1 00
Mrs. Amos F. Hobbs, Wenham, for two braid mats,	2 00
Miss Sarah L. Pedrick, Danvers, for mat,	1 00
Mary A. Ross, Danvers, mat,	50
Mrs. Henrietta Clark, South Danvers, mat,	50
Mrs. E. S. Osborn, Salem, mat,	50
Mrs. E. S. Woodbury, Hamilton, mat,	50
Mrs. Mary Dodge, Beverly, 80 years of age, mat,	50
Mrs. Nancy Friend, Beverly, 85 years of age, mat,	50
Mrs. L. D. Batchelder, Danvers, mat,	50
Lucy F. Ross, Danversport, mat,	50
Mrs. Phebe Whittredge, Rockport, rug,	50
Mrs. Mary Hitchings, Beverly, rug,	50
Mrs. Andrew Lackey, Marblehead, rug,	50
Mrs. Lucy W. Hale, Rockport, rug,	50
Mrs. M. H. S. Page, Danversport, rug,	1 00
Mrs. Edward Southwick, South Danvers, rug,	50
Mrs. Lydia Groce, Beverly, mats,	50
Mrs. Stephen Fernald, South Danvers, mats,	50
Lydia J. Walcott, Danvers, mats,	50
Mrs. S. Felton, Danvers, mats,	50

There was a large display of counterpanes and quilts—many of them very beautiful and evincing much skill and taste as well as industry on the part of the fair contributors. The committee take great pleasure in awarding to Mrs. Lydia Stone of Salem, the first premium of $4.00 for an elegant counterpane containing (4,090) four thousand and ninety pieces of silk, satin and velvet materials. And the second premium of $2.00 to Mrs. Harriet Morrill of Lawrence, for counterpane composed of three thousand eight hundred pieces of silk, and

made in six weeks by the lady who is 52 years of age. They also award to Mrs. Sophronia P. Baxter of South Danvers, for a counterpane composed of thirty-two hundred and eighteen pieces of silk—including a piece from a dress of Mrs. Martha Washington—a gratuity of $2.00

To Mrs. L. S. Preston, Danvers, two quilts,	$1 00
Mrs. T. M. Putnam, Danvers, quilts,	50
Mrs. Mehitable Trask, South Danvers, knit quilt made in her 81st year,	1 00
Mrs. C. Kimball, Salem, aged 74, for a counterpane containing 5447 pieces,	1 00
Mrs. Catherine E. Hutchinson, Danvers Centre, quilt,	50
Mrs. Mary Page, Danvers, knit quilt,	1 00
Mrs. Susan H. Payson, Rowley, white quilt, knit in shells and sewed together, composed of 975 shells,	1 00
Mrs. Margaret J. Kimball, Andover, white knit shell quilt, made in her 87th year,	1 00
Edith K. Smith, Beverly, patch-work quilt, 2220 pieces,	1 00
Ellen M. Rundlett, Newburyport, quilt,	50
Mrs. Alvin Smith, Hamilton, quilt,	50
Mrs. Mary P. Nelson, West Newbury, patch-work quilt, 1300 pieces,	1 00
Mary C. Very, Salem, quilt,	50
Mrs. Charles A. Hardy, Groveland, quilt,	50
Mrs. Lydia Ordway, Newburyport, 72 years of age, patch quilt, 1043 pieces,	1 00
Miss Mary Poland, Hamilton, quilt,	50
Abby Glidden, Danvers, 6 years of age, handsome patch quilt,	50

AUGUSTUS J. ARCHER, CHAIRMAN.

ARTICLES MANUFACTURED FROM LEATHER.

The Committee on articles manufactured from Leather, report as follows, viz :—

For the best pair of men's thick boots, to Wellington & Perkins of Ipswich,	$3 00
Second best do. to S. W. Perkins of Groveland,	2 00
W. H. Balch, Groveland, for best pair men's calf boots,	4 00
Second best do. to Wellington & Perkins, Ipswich,	2 00
Procter S. Dwinels, Rowley, best pair men's thick brogans,	2 00
Stickney & Co., Groveland, for best pair calf skin shoes,	2 00
A. J. Huntress, Groveland, best pair ladies' calf shoes,	2 00

The following gratuities have been awarded by the committee :—

To D. H. & C. Stickney, Groveland, ladies' calf boots,	1 00
Joel Putnam, Danvers, thick brogans,	2 00
Savary & Co., Groveland, women's Dutch boots,	1 00
R. H. Page, Groveland, women's Dutch boots,	1 00
William Black, Danvers, colored skins and bindings,	2 00
Richardson & Coolidge, Danvers, polished grain leather,	1 00
Henry Fowler and Joseph Merrill, Danvers, curried calf skins in the hair,	2 00
Procter S. Dwinels, Rowley, extra sized thick brogan, nailed bottom,	1 00

LEWIS ALLEN, for the Committee.

FANCY ARTICLES.

The Committee on Fancy Articles and all those contributions which do not come regularly under the charge of other committees, are happy in being enabled to report that the exhibition in their department was, in many respects, superior to pre-

vious years. Your committee have, however, to regret that owing to the great number of articles presented and the difficulty of deciding as to the respective merits of rival claimants they may, in instances, have failed to do strict justice to all the contributors. Every one is aware of the greater difficulty of deciding in matters of taste than in those of mere utility. It has become proverbial that "there is no accounting for taste," while in works of utility the benefits are more easily weighed and more accurately measured.

The committee would by no means, in thus speaking, convey the impression that these beautiful products, the handicraft of our fair sisterhood and those which display the taste and skill of the ingenious artisan, are without utility even in a higher sense than we apply the word to mechanical industry. Nature in all her works sets man the example of grace and beauty joined with utility in the objects of her creation and care. Men are but children of a larger growth, and what may be to the youth a toy, becomes in manhood the elucidation of a philosophical problem. It was a boy's kite which served to identify lightning with electricity, and which first carried the string that carried the cord that carried the rope that carried the cable, that was the means of spanning the roaring Niagara with that wonder of the age, the Suspension bridge. In like manner how many principles in electricity, physiology, astronomy and optics have thus been familiarly illustrated. But in our exhibition we have a utility of higher application than to the merely intellectual faculty of the mind, inasmuch as it ministers to the social feelings, the gentler affections of the heart and the domestic virtues.

We alluded to the great number of articles presented on which the judgment of the committee was to be pronounced. The whole number was over 150, quite too many, it must be admitted, of which to compare the distinctive merits in a few short hours. It is also quite out of proportion with the other departments of industrial labor. One of the committee had only half a dozen articles to examine and its work was done. In view of this unequal distribution of labor, the committee have some suggestions to offer for the consideration of the

Trustees, to which their attention is respectfully asked before framing the programme for the next exhibition.

We would, as a first suggestion, recommend that most articles on which premiums are awarded should be transferred to another committee, leaving to this committee a limited sum for gratuities.

These articles are horse-shoes, hats, combs, bonnets, embroidery and the best article of skill and ingenuity by a child under ten years of age. Now, it happened that there were only two specimens of horse shoes exhibited in the hall, and one of those was offered by one of the committee, who retired to enables his colleagues to make their decision unembarrassed by his presence. Another specimen was afterwards found in another department, its owner rightly regarding his manufacture as any thing but a *fancy* article.

Of hats, there were only to be found in the hall those worn by the committee; and of combs, such as were on the heads of the lady visitors. There was but one exhibitor of bonnets, and of embroideries a few good specimens. Here the ludicrous spectacle was presented of half a dozen men, who had just given their judgment on horse shoes, puzzling their brains in unavailing efforts to decide the relative merits of beautiful embroidery. They were only relieved from their perplexity by calling in the aid of several ladies, who kindly settled the matter by a prompt decision in favor of the successful competitor.

Should the foregoing suggestion meet with favor there would still remain more labor than falls to the lot of any other committee. A further division might be made by assigning such works of art as usually form a very attractive feature of this department, to a separate committee. These would consist not only of paintings, crayon and other drawings, ornamental penmanship, (of which one most exquisite specimen was in this exhibition), but sea mosses and flowers, feather work, ornamental hair work and other similar displays of taste and artistic excellence.

Were this division made, there would still be ample work for the committee to decide on the relative skill displayed in crochet work, lamp mats, embroidery, lace work, fancy slippers and such other fancy or utilitarian articles as may be

offered, together with the whole host of tidies. Indeed, the last named family is so numerous that it would not be out of place to organize a special committee of tidy-men.

A source of embarrassment has been alluded to in the small sum at the disposal of the committee for gratuities. In view of the attractiveness of this part of the exhibition by which a handsome revenue is brought to the society's treasury, it seems worthy of consideration whether a greater liberality would not only more adequately reward the contributors but be of absolute benefit to the income by rendering the exhibition still more attractive to visitors and thus have a more than self-sustaining effect.

C. A. Carlton, Danvers, bonnets, 2d premium,	$3 00
Lizzie W. Tapley, Danvers, child's work, under 12 years, premium,	2 00
Frances A. Woodbury, Danvers, crewel work and pictures, gratuity,	8 00
Eliza W. Jacobs, South Danvers, oil painting, gratuity,	4 00
Wm. A. Howard, Salem, pebbled-top table, gratuity,	3 00
Mary D. Richards, shell work and frame,	2 00
Mrs. Edward Hodges, Salem, chenille mat, gratuity,	2 00
Addie Scott, Salem, arranged mosses, gratuity,	2 00
Mary Watson, Salem, " " "	1 00

Hiram Andrews, Danvers, checker-board; Mrs. L. S. Preston, Danvers, crochet work, &c.; R. P. Shattuck, Lynn, penmanship; Lizzie P. Nelson, Rowley, hair work; E. S. S. Edgerly, Lynn, hair work, gratuity $2.00 each.

Eliza S. Dame, Hamilton, hair work, gratuity,	1 00
Mrs. Howe, Danvers, embroidery work, gratuity,	1 50

Mrs. Henry Cummings, Gloucester, embroidery work; Frances Young, Rowley, do.; Mrs. O. A. Cross, Danvers, do.; Susan Smith, Ipswich, crayon drawing; Emily P. Fellows, Danvers, do., gratuity $1.00 each.

Lucy D. Berry, Middleton, crayon drawing; Alice M. Putnam, Danvers, do.; Mrs. Henry Cummings, Gloucester, shell work; Mrs. S. S. Trask, Danvers, do.; Miss M. F. Demsey, do., do., gratuity 50 cents each.

Miss Merriam E. Smith, Danvers, lamp mat and wax flowers, gratuity,	1 50

Miss Merriam E. Smith, Danvers, worsted work; Miss Sarah E. Perley, do., sofa pillow, gratuity $1.00 each.

Mrs. Wm. Ferson, Gloucester, stitched hdkfs., gratuity, 1 50

Susan E. Perley, Danvers, crewel work, etc.; Mrs. J. W. Cressey, South Danvers, cone frame, etc.; Mary W. Putnam, Danvers, oriental painting; Mrs. L. Putnam, do., two pictures, in water colors; Mary P. Chaplin, do., tidy, gratuity $1.00 each.

Nancy B. Fellows, Danvers, tidy; Caroline C. Peabody, Topsfield, tidy; Augusta Lamson, Beverly, tidy; Mrs. M. P. Swasey, Beverly, tidy; Mary F. Porter, Danvers, tidy; Julia S. Cross, Danvers, tidy; S. L. Hildreth, South Danvers, tidy, a gratuity of 50 cents each; James Powers, South Danvers, penmanship, gratuity, $1.00; Caroline E. Weston, Danvers, map drawing; Sarah Kelley, do. do.; A. M. Smart, do. do.; John W. Inman, do. do.; Mrs. Joel R. Peabody, Topsfield, lamp mat; Etta M. Story, Danvers, do.; Mary F. Barr, Danvers, ottoman cover; Emma G. Shaw, Danvers, Grecian painting; Hannah R. Pope, Danvers, pictures in water colors; Sarah E. Putnam, do. do. do., a gratuity of 50 cents each.

David Styles, Jr., Middleton, horse shoes, 1st premium, 5 00

J. Kimball, Boxford, do., 2d premium, 3 00

Samuel Church, Salem, do., gratuity, 2 00

FITCH POOLE, CHAIRMAN.

DAIRY.

The Committee on the Dairy, having inspected the numerous specimens of Butter offered for premium, award as follows, viz:—

To Sarah Holt, Andover, the first premium, $12 00

S. L. Ridgway, West Newbury, second premium, 11 00

J. Albert Day, West Boxford, third premium,	10 00
Jacob P. Goodale, South Danvers, fourth premium,	9 00
Carrie M. Moulton, West Newbury, fifth premium,	8 00
Ezra Batchelder, Topsfield, sixth premium,	7 00

On Cheese the committe award as follows :—

To Mrs. Paul Titcomb, Byfield, first premium,	$10 00
Mrs. Stephen E. Noyes, West Newbury, 2d prem.	8 00
Harriet D. Sawyer, West Newbury, 3d prem.	6 00
William Marshall, Essex, 4th prem.	4 00

Notwithstanding we do not find the articles of bread and honey enumerated among those for which we are allowed to award premiums, yet falling as they so obviously do into the same category with butter and cheese, we recommend the following gratuities, viz :—

To Mrs. E. G. Hyde, Danvers, for a loaf of potato and rye bread,	$1 00
Charlotte J. Hines, Beverly, aged 16 years, for a loaf of wheat and Indian bread,	1 00
Mrs. E. G. Hyde, Danvers, loaf of rye and Indian bread,	1 00
Sarah E. Bray, Newbury, aged 7 years and 6 months, for a loaf of bread,	1 00
Mrs. Ira Story and C. A. Reed, Danversport, for a specimen of cake and pie,	1 00
Mrs. Mary N. Batchelder, Salem, for a loaf of Graham bread and a loaf of flour bread,	1 00
E. R. Reed, Danversport, for a pie,	50
G. H. Wise, Salem, for ten kinds of plain and fancy cake and a variety of rich confectionery,	3 00
Levi Fish, Danvers, for a specimen of honey,	1 00
Charles P. Preston, Danvers, for specimens of honey,	1 00
A. F. Bosson, Salem, for a specimen of honey,	1 00

DAVID CHOATE,
JOHN SMITH,
DANIEL RICHARDS,
JOHN DAY, Jr.,
WM. C. BARTON,
ELIJAH C. LUMMUS,
} COMMITTEE.

SARAH HOLT'S STATEMENT.

I present for inspection fifteen pounds of September Butter.

PROCESS OF MAKING.—The milk is strained into tin pans well scalded, and allowed to stand thirty-six hours in a cool cellar, when it is skimmed into stone pots and stirrred twice a day. I churn twice a week. The butter is then washed with cold water and salted with rock salt, one ounce to a pound; it is then set in a cool place from eight to ten hours, when it is well worked over. The next morning it is worked over again, and then made into balls for the market without any ornament or coloring.

Andover, Sept. 28, 1858.

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SARAH L. RIDGWAY'S STATEMENT.

I present for your inspection fifteen pounds of September Butter, made by the following process:

The milk was strained into tin pans, and allowed to remain on shelves in a well ventilated cellar thirty-six hours, when it was skimmed into tin pails, and stirred as often as more cream was added to it; churned once in about three days; the butter was thoroughly washed in cold water, and salted to the taste with rock salt, and left in the cellar ten or twelve hours, when it was well worked with the hands and made into balls as presented.

West Newbury, Sept. 27, 1858.

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J. ALBERT DAY'S STATEMENT.

I present for inspection a box of September Butter.

PROCESS OF MAKING.—The milk is strained into tin pans, and set in a cellar prepared for the purpose, and stands from 36 to 48 hours, according to the weather, but the cream is not allowed to remain on the milk *after the milk becomes sour*; (this butter is made from the milk of fourteen cows). I churn every

other day. The butter-milk is worked out by hand; salted to the taste with the best of rock salt. Salting butter by weight does not make butter equally salt, as there is a difference in the strength of salt.

Boxford, Sept. 28, 1858.

CARRIE M. MOULTON'S STATEMENT.

I enter for premium a pot of September paper.

PROCESS OF MAKING.—The milk is strained into tin pans and placed in a cool cellar prepared for the purpose; and allowed to stand from thirty-six to forty-eight hours, according to the weather. The cream was put in tin pails, stirred daily, and churned once a week. The butter was slightly worked with the hands when taken from the churn to free it from butter-milk, and salted with one ounce of rock salt to the pound. Then left in a cool place for about twenty-four hours, when it is again thoroughly worked and stamped for market.

West Newbury, Sept. 28, 1858.

JACOB GOODALE'S STATEMENT.

I offer for premium three boxes of Butter containing eighteen pounds, made in September. The milk is strained in tin pans about half full and set in a cool cellar. The milk is skimmed when sour and put into tin pails till ready to churn. The churn used is a barrel churn with floats inside. When the butter is taken from the churn, the butter-milk is thoroughly worked out and the butter salted to suit the taste. After standing twenty-four hours it is worked over the second time.

South Danvers, Sept. 29, 1858.

EZRA BATCHELDER'S STATEMENT.

I present for inspection sixteen pounds of September butter.

PROCESS OF MAKING.—The milk is strained into tin pans

and set in a cellar prepared for the purpose, and stands from thirty-six to forty-eight hours, according to the weather. Churn once a week. The butter-milk is worked out by hand, and salted to the taste.

Topsfield, Sept. 29, 1858.

MRS. PAUL TITCOMB'S STATEMENT.

I offer for premium three new milk Cheeses, made the middle of July, consequently are not so thoroughly dry as those made in the middle of June.

My method of making is as follows. Strain the evening milk, add rennet of sufficient strength to form a curd in thirty minutes, but avoid breaking it until it has stood one hour; then place it to drain until morning; repeat this process with the morning milk, then scald the curds with whey, drain thoroughly, chop fine, salt, and press twenty-four hours.

Byfield, Sept. 28, 1858.

MRS. STEPHEN E. NOYES'S STATEMENT.

I present for your examination more than fifty weight of Cheese, made in the month of July, being a sample of some sixty cheeses that I have made the present season in the following manner.

At night the milk was strained into a tub, to which the rennet was added—the definite quantity of which I will not state, as it greatly depends upon the quality which brings it to a curd.

The morning's milk is prepared in the same manner; but the curds are kept separate until the time of scalding, when they are put together; afterwards it is chopped fine, and salted with about eight ounces of salt to twenty pounds of cheese. It is then pressed twenty-four hours, afterwards put in a safe and turned and rubbed every day.

West Newbury, Sept. 28, 1858.

HARRIET D. SAWYER'S STATEMENT.

I enter for premium four new milk Cheeses, weighing fifty-three pounds. Each cheese contains the milk of two days. The evening milk is strained into a tub and rennet added immediately. The rennet should be of sufficient strength to form the curd in thirty minutes, and should not be broken up under one hour or more. After being carefully broken, it is dipped off and left to drain until morning. The same process is repeated with the morning's milk. After that is broken the evening's curd is skimmed into it. The whole is then scalded with whey dipped from it, then thoroughly drain, chop fine, salt, and press twenty-four hours. Salt with Liverpool salt, one table spoonful to a pail of milk. The cheeses are then dried in a dark room, turned and rubbed daily. Late in the fall they are removed to a cool cellar, packed in straw and occasionally rubbed and repacked. Two of these cheeses are sage. The night previous to making them I pound the sage and soak it in milk until morning. I then strain the liquor into the milk just before I put the rennet in. I use my own judgment as to quantity, varying it as to the size of the cheese.

West Newbury, Sept. 28, 1858.

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WILLIAM MARSHALL'S STATEMENT.

I present for inspection 68 pounds of Cheese, as a specimen of 1139 pounds made from the milk of 9 cows, in 67 days, commencing June 29th and ending Sept. 3d. The milk is set immediately after it is taken from the cows, with rennet previously prepared, in proportion of half a teacupful to 12 gallons of milk. In about thirty minutes the curd is formed, when it is broken up, separated from the whey, and left to drain until morning. It is then sliced, the morning's milk strained upon it, and the process of the evening repeated. After draining four or five hours it is ground and salted with six ounces of salt to seventeen pounds of cheese.

Essex, Sept. 29, 1858.

COMPARATIVE VALUE OF CROPS AS FOOD FOR CATTLE.

No experiments or tests illustrating this subject have been submitted for premium, and the committee regret that it is so, having earnestly hoped that upon a subject so important to all concerned many such experiments would be made and thereby much light thrown upon the question, and each article of fodder have its appropriate value in the feeding of stock permanently established as far as possible. Scientific men have experimented carefully upon this question, though perhaps none in our own country, and we believe few farmers fail to satisfy their minds to some extent in regard to it, but such is the difference in the subjects of the experiments, in the period and manner of making them, in the object desired to be obtained, in the condition and character of the food used, (though the latter may be of the same variety even in all cases) that a noticeable difference exists in the results and they are conflicting and contradictory.

Though upon a subject so broad, and influenced by such a variety of circumstances, it is difficult to obtain strictly correct conclusions, yet by numerous experiments, carefully made and detailed, the comparative value of various articles of fodder can be sufficiently established to be of much advantage to the feeder; and to this end it is desirable that those who are employed in this branch of farming, record their experiments with minuteness and accuracy for the benefit of those who have not their experience, and that thus whatever information is gained may be secured.

It was the opinion of Boussingault, who made numerous experiments in the feeding of stock, that the relative value of the crops employed for fodder was in proportion to the amount of nitrogen they severally contained—and he arranged some of these articles in the following order producing equal effects in feeding, when consumed in their usual state of dryness:—

Hay from mixed grass,	100 lbs.
Hay, second crop,	75 "

Hay from clover in flower,	75 lbs.
Pea straw,	64 "
Lentil straw,	114 "
Indian corn straw,	240 "
Barley straw and wheat straw,	520 "
Oat straw,	550 "
Swede turnips,	676 "
Sugar beet,	669 "
Carrots,	382 "
Beans,	23 "
Peas,	27 "
Indian corn,	70 "
Buckwheat,	55 "
Oats,	60 "
Linseed cake,	22 "
Barley,	65 "

The subject can hardly, however, be made practical to us as farmers, unless we resolve it into its various parts and consider them separately. So different are the objects of the farmer in feeding stock, that an article desirable and valuable for one purpose may be almost useless for another, and to ascertain the relative merits of different food we cannot well do so as regards all the purposes of feeding collectively. Many experiments and tests are therefore to be made, and will be valuable if they make plain to us the method of feeding requisite for the attainment of any of these ends. We hope that during the coming year, whether this premium continues to be offered by the society or not—these tests will be made and published. In summer when green food is abundant, we question the superior advantages of any other course of feeding. But in winter it is desirable to economise so bulky and valuable an article of fodder as hay; it is therefore for the interest of the farmer and quite as much so for the stock, to use mixed food.

Says Prof. Johnston :—"The skillful feeder will occasionally change the kind of food—he will not attempt to maintain his stock on any kind of food which does not contain a sufficient supply of every one of the kinds of matter which the body requires. He will adapt the kind and quantity of food to

the age of the animal and to the purposes for which it is fed."

No kind of winter food is sufficiently complete in itself, to enable an animal for a length of time to afford the greatest possible return to the feeder, unless the animal is one, which having for a long time afforded profit to its owner, only requires a season of rest to recuperate its exhausted stores, and unless the feeder has no eye to present return, the whole system of winter feeding being artificial. Three centuries ago the timely advice of Tusser to the English farmers was to store up their beef in November, when oxen, which were fat upon the green food of summer, began to grow thin and which lived through the winter partly on the fat stored up in time of plenty, no fresh beef being seen from Martinmas to Easter. It is since the commencement of the present century that the difference between heat-producing and flesh-forming substances, has been noticed and cattle have been fed according to established principles.

The feeding of stock embraces several objects requiring for all practical purposes two peculiar modes of feeding; although, when examined minutely, the ingredients employed by the animal in the constitution of its frame are numerous. But it is sufficient for our purpose that we adopt two methods with special reference to the following objects:

1st. The growth of the animal, increase of muscle in working cattle and the production of cheese.

2d. The increase of fat and the production of butter.

Food having a large proportion of albumen, casein, &c., is especially calculated to bring about a good result, when the object of the feeder is to produce some of the first mentioned returns.

Not having experiments of our own to illustrate this point, we quote the table of Boussingault.

Theoretical quantities of different kinds of vegetable produce, having equal effect in the growth of muscle:—

Hay,	10	Potatoes,	28
Clover hay cut in flower,	8	Old potatoes,	41
Lucerne,	8	Carrots,	35
Second crop,	8	Turnips,	61
Green clover in flower,	34	White cabbage,	37
Green Lucerne,	35	Vetches,	2
Wheat straw,	52	Peas,	3
Rye straw,	61	Indian corn,	6
Barley straw,	52	Wheat,	5
Oat straw,	55	Rye,	5
Pea straw,	6	Barley,	6
Vetch straw,	7	Oats,	5
Potato leaves,	36	Bran,	9
Carrot leaves,	13	Oil cake,	2

In feeding for the increase of fat and production of butter, it is necessary to employ food rich in vegetable oils; for these two objects one method of feeding is mainly available and will secure the end desired, though some of the vegetable oils be more appropriate to the increase of fat than others, and some be peculiarly adapted to the production of butter, and though the observation of Mr. Horsfall, whose essay upon the management of dairy cattle is a most valuable acquisition to agricultural literature, be true:—"It is worthy of remark that experience states that rich pastures used for fattening, fully maintain their fertility through a long series of years; while those used for dairy (butter) cows require periodical dressings to preserve their fertility."

If we can economically make the distinction spoken of here respecting the different qualities of oils, so much the better. Shall not the experiments of the coming year illustrate this matter in respect to the winter food of fattening and butter-making stock?

That oleaginous plants are most productive of fat and butter, when fed to cattle, is abundantly proved by the experience of numerous practical and scientific men. This is the general rule; an exception, however, has been found in the comparative results of linseed and bean meal in the produce of butter by Dr. Thompson, the latter producing more butter than the former, though containing less oil, and he gives as a probable reason for this, the constituents of bean meal being in the natural proportion to restore the waste of the animal system.

Some of the more common articles of cattle food contain of oil, per centum as follows :—

Hay,	2.68	Linseed cake,	11.41
Indian corn,	5 to 9	Malt combs,	2.96
Barley,	2.5	Bean straw,	2.23
Oats,	5.6	Pea straw,	1.5
Beans,	2+	Potatoes,	0.3
Linseed,	11.00	Turnips, (starch gum)	10.0
Rape seed,	11.63	Carrots,	0.4
Cotton seed cake,	16.47	Clover hay,	3.0
Bran,	5.56	Indian corn straw,	1.7

We would refer the reader to the following sources of information upon this subject :—

Johnston's Agricultural Chemistry, chaps. xx—xxi.

Thompson's "Food of Animals."

Horsfall's Essay on Dairy Management, published by the Massachusetts Society for promotion of agriculture.

Boussingault's Rural Economy.

J. Royal Agricultural Society, England, vol. 3, p. 81-258.

Morton's Cyclopedia of Agriculture, Art. Nutrition.

We are anxious that our own farmers should not only investigate this subject, but record their conclusions and their experiments.

G. P. SARGENT, CHAIRMAN.

FAT CATTLE.

The Committee on Fat Cattle having attended to the duty assigned them, submit the following report :—

There were entered for premium—

One yoke of oxen, by Richard Dodge of Beverly,

One yoke by Josiah Low of Essex.

One yoke by B. Hutchinson of South Danvers.
Two yoke by Joseph Kittredge of Andover.
One ox by Paul D. Patch of Hamilton.
One yoke by John T. Wood of Boxford.
One yoke by R. S. Rogers of Salem.
And your committee have awarded—

To Joseph Kittredge, North Andover, for light red ox, 1st premium,	$15 00
Paul D. Patch, Hamilton, for odd ox, 2d premium,	10 00
John T. Wood, Boxford, for his off ox, 3d premium,	5 00

And they would give mileage to Joseph Kittredge of Andover, for three oxen; and to B. Hutchinson of South Danvers, for two oxen.

CYRUS W. LORD,
JOHN D. CROSS,
J. P. GOULD,
AMOS SMITH,
JOHN O. TENNEY.
} COMMITTEE.

BULLS OF FOREIGN BREED.

The Committee on Bulls of foreign breed submit the following report:—

The Ayrshire, Devon, Durham and Jersey were the only bulls of foreign breed on exhibition, the Herefords not being represented.

Of the Ayrshire breed we are sorry to say that the exhibition, as regards numbers, was very meagre indeed, there being but one bull of the above species on the ground, but justice compels us to state that the one exhibited was a "host in himself." This bull was offered for premium by George B. Loring of Salem, and the committee are unanimous in saying that he is one of the finest animals of the class it has ever been their good fortune to look upon; and after a careful examination of all his

points, they are fully satisfied in awarding to Dr. Loring the first premium of $15.00 for his Ayrshire bull.

There were but two Devon bulls offered for exhibition and premium, and here again the committee regret that this exceedingly fine breed of cattle was not more largely represented. The bull entered by A. P. Fuller of North Andover, although a fine animal, did not come up to that standard of excellence which in the opinion of the committee the society requires, and therefore they could not in justice give him the first premium, but have awarded him the second of $10.00 for his two years old bull of the Devon breed.

The Durham bull offered by Charles W. Adams of Newbury, your committee consider entitled to the second premium of $10 and have so awarded it. There was but one of this class entered.

In reference to the Jerseys your committee would state in the first place, that they have experienced great difficulty in determining which animals deserved the premiums, and it was only after a most thorough and patient examination, that they have come to any decision at all. In the next place, they exceedingly regret that the funds are so limited as not to allow but two premiums. There were nine fine looking Jersey bulls entered for premium. Among the finest looking and most superior animals were those offered by R. S. Fay, T. E. Payson, R. S. Rogers, and Charles G. Loring. The other five had marks of excellence and beauty, and by themselves would be considered superior animals. The four bulls belonging to the above named gentlemen were the subjects of much discussion and consideration. And after examining each animal over several times your committee have at last arrived at the following conclusion, viz: To award to Charles G. Loring of Beverly, the first premium of $15.00; and to R. S. Rogers of Salem, the second premium of $10.00.

The committee recommend mileage to R. S. Fay of Lynn, Thomas E. Payson of Rowley, Daniel Lunt of Newbury, Chas. Harriman of Groveland, and William Marshall of Essex.

JAMES STEVENS,
EDWARD H. SMITH,
WARREN ORDWAY,
P. P. PILLSBURY.
} COMMITTEE.

BULLS OF NATIVE BREED.

The Committee on Bulls of native or mixed breeds, report—

That fourteen bulls were entered for premium. Some were called native and others grade, but it was plain to be seen that nearly all of them possessed an admixture of some foreign blood. Many of them were superior animals and the committee were not unanimous in opinion. They award the premiums as follows :—

To Abraham Balch, Topsfield, first premium,	$15 00
Moses Pettengill, Topsfield, second premium,	10 00
Philip L. Osborne, South Danvers, third premium,	5 00

They recommend that mileage be allowed to Samuel A. Merrill of Salem, Daniel Norwood and Joshua N. Kent of Newbury. Several bulls well deserving of mileage were entered besides these, which were from Danvers or Beverly and therefore so near the place of exhibition that the committee did not think it necessary to make any recommendation in their favor.

T. E. PAYSON,
OLIVER LOCKE,
JOHN KENT,
ISRAEL P. EDWARDS,
HENRY A. KING,
} COMMITTEE.

MILCH COWS OF FOREIGN BREED.

The Committee on Milch Cows of foreign breed would report :—

There were no animals presented in accordance with the rules of the society.

The milch cows of foreign breed on the ground, whose pedi-

grees were undoubted, were Jerseys; and the display of this class of animals was very fine.

The Jersey cow "Kate" entered for exhibition by Joseph S. Cabot of Salem, was imported and is an excellent specimen of her kind.

The Jersey cow "Minnie," belonging to R. S. Rogers of Salem, is remarkable for symmetry and beauty, and is considered one of the most valuable animals imported by the State Society. A beautiful two year old Jersey heifer belonging to Hazen Ayer, of South Danvers, was brought before the committee, but was found to belong to another class. "Looly," a fine four year old cow exhibited by R. S. Fay, bears all the marks of her high breeding, and is a very valuable cow.

The Jersey cow of Franklin Haven is a fine animal but evidently belonged to another class of Jerseys from those we have been considering.

A most remarkable cow belonging to C. G. Loring of Beverly, attracted much attention of the committee. No statement was presented with her, but the committee were informed that she gave at the height of her milking fifteen quarts per day and for many weeks fourteen pounds of butter per week. She was bred by Mr. Loring from imported stock. A large brindle and white cow of fine appearance was entered as a "Durham," but the committee had no pedigree given them, and as the herd books now designate this class of animals as "improved Short Horns," it is supposed her name could not be found.

The Devon cow of T. W. Pierce of Topsfield, is well worthy of special notice by the committee, and they regret that she had no statement accompanying her.

There were two Ayrshires presented for exhibition, from a recent importation into this county, viz: That of Mr. Cabot was bred by James Kilgour, near Ayr, Scotland, and is of blood which he has bred from for twenty years. She calved (second calf) the last of June and gave 20 wine quarts of milk per day in July last. Dr. Loring's is three years old and was bred by John Meikle, of Tarbolton, Ayrshire. She calved for the first time in April last, and in June gave upwards of 20 wine quarts of milk per day.

The committee would express their high gratification at the quality of thorough-bred cows exhibited, as indicating increasing attention to choicer stock breeding, and promising much benefit to the community. They believe no county in the state can show finer animals than graced our show. And they regret that they could not award premiums in accordance with the merits of the animals.

GEORGE B. LORING, CHAIRMAN.

MILCH COWS OF NATIVE OR MIXED BREED.

The Committee on Milch Cows of native or mixed breed, report :—

After a very careful examination of the animals submitted to their inspection, having in their decision paid great regard to the keeping, points of excellence, and the results handed them in writing, would award—

To William Mack, Salem, for his grade cow "Daisy,' 7 years old, of native and Hereford stock, 1st pre $10 00

Albert Dodge, Beverly, for his native black cow, with twin bull calves by her side, 10 years old, 2d pre. 8 00

Isaac Dempsey, Danvers Centre, for his native cow, eight years old, 3d premium, 5 00

The committee add the following statements and details to the foregoing. William Mack's statement :—

I present for premium my red cow "Daisy," seven years old last spring. She is a native mixed with Hereford. She dropped her last calf March 29th, and will calve again about the middle of next April. From the time she dropped her calf till the middle of May, she had two quarts of shorts per day, with English hay, first crop. From the middle of May to the 20th

of August, she had nothing but fair pasturing. From August 20th to the present time, she had corn fodder, in addition to her pasturing. Below is a table showing the quantity of milk she has given from April 20th to the present time. The milk has been measured by beer measure, and weighed by avoirdupois weight. The milk has been weighed twice each month, and has averaged 2 pounds 11 ounces per beer quart.

By the lactometer, the largest quantity of cream indicated has been 17-100, and the smallest has been 14-100.

The average of her milk per day from April 20th (when the calf was taken away) to Sept. 25th, as will appear by the table, has been 13 61-158 quarts. The calf was sold to the butcher for $6.

Then follows an exact daily table of the milk from April 20th to Sept. 26th Result as follows :—

From April 20th to May 1st.:	Total	161	qts.	432	lbs	8	oz.
" May 1 to June 1,	"	485	"	1310	"	15	"
" June 1 to July 1,	"	451	"	1211	"	9	"
" July 1 to August 1,	"	388½	"	1046	"	8	"
" August 1 to September 1,	"	355	"	953	"	11½	"
" September 1 to Sept'r 26,	"	274½	"	737	"	5	"
Total,		2115	qts.	5692	lbs.	8½	oz

From June 1 to June 11,—157 qts. 421 lbs. 12 oz.
" Sept. 1 to Sept. 11,—111½ " 299 " 8 "

The following is the statement of Albert Dodge of Beverly, to whom was awarded the second premium :—

I enter for premium one black cow, ten years old, a cross between the Alderney and Durham. She dropped her calf on the 15th of August, 1857 ; the calf was taken away the 1st of September. The amount of milk given in

September,	525	qts.	April,	375	qts.
October,	512	"	May,	340	"
November,	500	"	June,	360	"
December,	475	"	July,	280	"
January, 1858,	465	"	August,	235	"
February,	420	'			"
March,	400	"		4887	"

Through the winter she had cut hay with about four quarts of shorts per day; in summer nothing but grass, in common pasture.

The statement of Isaac Dempsey of Danvers Centre, to whom was awarded the third premium :—

The cow I offer for premium is eight years old. I have owned her for five years; her breed is native. She had her last calf last April and is to calve again next May. Her keeping has been pasture feed with two quarts of meal per day. Her milk was weighed morning and evening for the first ten days in June and September, with the following result :—

June.	Morning.	Evening.	Sept.	Morning.	Evening.
1,	16 1-4 lbs.	22 3-4 lbs.	1,	14 1-2 lbs.	17 3-4 lbs.
2,	18 3-4 "	23 3-4 "	2,	12 1-2 "	18 1-2 "
3,	17 "	24 1-2 "	3,	12 "	18 3-4 "
4,	17 "	26 3-4 "	4,	13 1-4 "	13 1-4 "
5,	18 3-4 "	23 1-4 "	5,	16 1-4 "	12 1-2 "
6,	18 1-4 "	24 1-4 "	6,	16 3-4 "	17 1-2 "
7,	16 1-4 "	23 "	7,	17 "	19 "
8,	17 1-4 "	22 "	8,	14 "	16 1-4 "
9,	15 3-4 "	25 1-2 "	9,	15 1-2 "	16 1-2 "
10,	20 "	26 "	10,	13 "	18 "
	175 1-4	241 1-2		144 3-4	168
		175 1-4			144 3-4
Total in 10 days,		416 3-4	Total for 10 days,		312 3-4

Besides those to whom premiums were awarded there were some other cows offered, and among them was a cow belonging to Israel P. Boardman of Danvers, that possessed good qualities and points; another belonging to Adam Nesmith, also of Danvers, of Jersey grade, which showed indications of being a good milker, but was in poor condition, so much so, as might induce any one to withhold a premium. The committee would especially mention a remarkable cow, when her age is considered, belonging to James Stevens of Andover, offered for exhibition only. We give in his own words the following statement.

I offer for exhibition my cow "Matron." She is fifteen years old, and was raised by myself from a native cow, and sired by a Durham bull from the Silsbee farm in Bradford. She has always been a great milker, but as I have never kept

an account of her produce until this season, I have never before offered her for exhibition.

On the 3d of January, 1858, she dropped her calf, and on the following 6th, having in the meantime disposed of the calf, I commenced keeping a true and accurate account of her milk, and the amount of sales, and ended on the 6th of September, making just eight months.

She began by giving 16 quarts a day, and three days in succession in January she gave 17 quarts each day, but 16 quarts a day was her average through the month. She gave 16 quarts a day until the 20th of February, and then 15 for the remainder of the month. In March, she gave 15 quarts a day nearly all the month.

From January 6th to February 6th	she	gave	400	quarts.
" February 1st to March 1st,	"	"	432	"
" March 1st to April 1st,	"	"	434	"
Total for the three months,			1266	"

This was sold at the barn for four cents per quart, making the amount $50.64. During the three above mentioned months, her feed was as much good English hay as she could eat, and 12 quarts of fine feed, (or 6 quarts of cob meal and 4 quarts of fine feed) each day. Her drink was 12 pails of warm water each day. She drank five pails of water in the morning, 2 do. at noon, and 5 at night. The fine feed (or meal) was mixed with her drink. This statement may seem large, but I can substantiate it by many witnesses.

On the first of April the price of milk was reduced from 4 cents per quart to 25 cents for 9 quarts.

From April 1st to May 1st,	she	gave 360	quarts.
" May 1st to June 1st,	"	310	"
" June 1st to July 1st,	"	300	"
" July 1st to August 1st,	"	297	"
" August 1st to Sept. 1st,	"	248	"
" Sept. 1st to Sept. 6th,	"	42	"
Total for 5 months and 6 days,		1557	
From Jan'y 6th to Ap'l 1st,	she	gave 1266	"
Sum total for 8 months,		2823	"

After she left the barn, and went to pasture, she had good feed of grass with no grain. Since August she has been fed night and morning with fodder corn. From April 1st to May 20th, (when she went to pasture) her drink was cold water (with the amount of grain mentioned above), which I think accounts for the decrease in her milk in April. She will calve on the first of January next. The amount received for her milk for eight months is $95.16.

In closing this report the committee feel called upon to urge all persons who may offer animals for exhibition or premium (more particularly the latter) to render an accurate and detailed statement, and not to have cows, bulls and swine included in one and the same statement, (which occurred in more instances than one;) for it must be obvious, were they all so mixed up the committee on each *class* would not receive it, nor could they know that such a statement was in the hands of another committee.

In the confusion attendant upon such occasions, mistakes may easily occur—and from the above cause persons exhibiting valuable animals may be disappointed in their statements not reaching the appropriate committee.

The committee instead of gratuitously offering any advice, or opinions of their own, in relation to dairy stock, would earnestly recommend to the perusal of all farmers, a very valuable work recently issued from the press by Charles L. Flint, Secretary of the Massachusetts State Board of Agriculture, entitled "Milch Cows and Dairy Farming." They will find the work filled with details of the most interesting and valuable facts and suggestions.

RICHARD S. ROGERS, CHAIRMAN.

HERD OF MILCH COWS.

The Committee on Herd of Milch Cows report as follows :-

One entry only was made, and that by M. C. Adams of Danvers, consisting of 25 cows. The committee (three only being present) after viewing the herd, are unanimous in awarding to Mr. Adams the first premium of $20.00.

CALVIN ROGERS,
DANIEL G. TODD,
JOSHUA L. NEWHALL, } COMMITTEE.

—

MARSHAL C. ADAMS'S STATEMENT.

The cows, twenty-five in number, which I offer for premium, are mostly natives. Their keeping in winter while giving milk, consists of English hay, four quarts of shorts and two quarts of cob meal each per day. When dry they are kept upon meadow hay and corn fodder, without grain. In summer their keeping is good pasturing without grain. Their average each per day from April 1st to Oct. 1st, 1858, was nine quarts of milk.

Danvers, Sept. 29, 1858.

HEIFERS.

For Heifers three years old the committee award—

To Richard S. Fay, Lynn, 1st premium,	$7 00
William D. Northend, Salem, 2d "	6 00
Richard S. Rogers, South Danvers, 3d premium,	5 00

For heifers two years old—

To Joseph S. Cabot, Salem, 1st premium,		$5 00
Ezra Batchelder, Beverly, 2d	"	4 00
Hazen Ayer, South Danvers, 3d	"	3 00

For Yearlings—

To Richard S. Rogers, South Danvers, 1st premium,	4 00
George B. Loring, Salem, 2d prem.	3 00
Thomas E. Payson, Rowley, 3d "	2 00

They would award mileage—

To Hazen Ayer, South Danvers, on two yearlings.
John R. Wellman, Middleton, on 1 yearling and 2 two year old.
George B. Loring, Salem, on three yearlings.
Benjamin Scott, Rowley, on two 2 year olds.
John Hood, Danvers, on his yearling.
T. W. Pierce, Topsfield, on 2 two year olds and 2 yearlings.
James Poor, North Andover, on his two year olds.
Gorham P. Sargent, Byfield, on grade Devon two years old and on 4 yearlings.
Joseph Andrews, Wenham, on his yearling.
William H. Foster, Beverly, on 2 two years old.
John Perkins, South Danvers, on 3 yearlings.
Thomas E. Payson, Rowley, on 2 yearlings.

PAUL T. TITCOMB, CHAIRMAN.

WORKING OXEN.

The Committee on Working Oxen, consisting of Jedediah H. Barker of North Andover, Ezra Dodge of Wenham, David Wetherbee of Lynn, Nathan Tapley of Danvers, report:

Your committee were pleased with the work of the oxen; seldom have they done better. Praise is also due to the teamsters in being so quiet in the performance of their part of the work.

In deciding which cattle were best entitled to a premium, it was a difficult task where all did so well; had there been more premiums the committee would gladly have awarded them.

As the rules of the society require the age and weight of the cattle, weight of load exclusive of wagon, we have inserted below the full particulars of the same.

There were twenty-two pair entered for premium of which seventeen appeared on the ground for trial :—

No.	Names of Persons	Residence.	Age of Oxen.	Weight of Oxen.	Weight of load drawn.
1,	John B. Jenkins,	Andover,	6	3000 lbs.	3 tons.
2,	Abijah P. Fuller,	N. Andover,	6	3160 "	3 "
3,	Richard S. Bray,	Newbury,	6	2750 "	2½ "
4,	Edward H. Little,	Newbury,	6	2950 "	2½ "
5,	Jacob Farnum,	N. Andover,	5	2574 "	2½ "
6,	Jacob Farnum,	N. Andover,	5	2394 "	2½ "
7,	Amos P. Swinnerton,	Danvers,	5	3100 "	3 "
8,	Francis Dodge,	Danvers,	6	2825 "	2½ "
9,	Joseph Kittredge,	N. Andover,	6	4000 "	3 "
10,	Jonathan Berry,	Middleton,	6	3080 "	2½ "
11,	Lucy & Hubbard,	Newbury,	6	2960 "	2½ "
12,	Horace Ware,	Marblehead,	6	2960 "	3 "
13,	James Cary,	Swampscott	4	2540 "	2½ "
14,	Franklin Alley,	Marblehead	6	3900 "	3 "
15,	Richard S. Rogers,	S. Danvers,	7	3460 "	3 "
16,	Charles P. Preston,	Danvers,	7	3205 "	2½ "
17,	Elijah Pope,	Danvers,	6	2430 "	3 "

We have awarded the premiums as follows :—

To James Cary, Swampscott, for his red 4 year old steers, 1st premium, $10 00

Elijah Pope, Danvers, for his line-back 6 year old oxen, 2d premium 8 00

Jacob Farnum, North Andover, for his 5 year old black head oxen, 3d premium, 6 00

John B. Jenkins, Andover, for his white face oxen, 6 years old, 4th premium, 4 00

JEDEDIAH H. BARKER, CHAIRMAN.

STEERS.

The Committee on Steers have examined the several pairs offered for premium, and make the following report :—

For three year olds, they would award—

To Charles H. Bigelow, North Andover, 1st premium,	$7 00
Joseph K. Farley, Boxford, 2d premium,	6 00

No two year olds were offered. For yearlings they award—

To Samuel Longfellow, Newbury, 1st premium,	$4 00
George Adams, Newbury, 2d premium,	3 00

They would recommend mileage to Richard T. Jaques of Newbury.

I. OSGOOD LORING, for the Committee.

STALLIONS.

For the best stallion, 4 years old and upwards, the committee award—

To Robert Farley, Jr., Ipswich, 1st premium,	$20 00
Josiah Crosby, North Andover, 2d "	10 00

For the best stallion under 4 years old—

To Albert Kimball, Bradford, 1st premium,	15 00
Eben S. Poor, South Danvers, 2d "	10 00

The committee recommend mileage to Lambert Maynard of Bradford, for his "Young Hercules."

DEAN ROBINSON, CHAIRMAN.

BROOD MARES.

The Committee on Brood Mares would report, that there were 21 mares with their colts presented for premium and exhibition, and they award—

To Joseph Kittredge, North Andover, for his grey mare, 1st premium,	$10 00
Robert Farley, Jr., Ipswich, for his grey mare, 2d prem.	8 00
Joshua H. Poole, South Danvers, for his sorrel mare, 3d premium,	3 00

There were several other very fine mares to which the committee would cheerfully have awarded premiums had they them at their command. They would unanimously recommend mileage to all the others which came from such distance as will entitle them to it.

ANDREW DODGE,
JOHN LOW,
JOSHUA N. KENT,
HAZEN AYER,
DAVID H. CALDWELL, } COMMITTEE.

FARM AND DRAFT HORSES.

The Committee on farm and draft Horses, report 15 entries for the society's premiums, one horse not being present and two withdrawn. Those put on trial did their work much to the satisfaction of the committee, and they regret that they had no more premiums to offer as there were others worthy of premiums. They award—

To S. Bardwell, Andover, 1st premium,	$10 00
C. H. Gould, Danvers, 2d "	8 00
James Cary, Swampscott, 3d "	6 00

WILLIAM OSBORN, CHAIRMAN.

COLTS.

The Committee on Colts, (mares and geldings), beg leave to submit the following report :—

For colts 4 years old they award—

To Lambert Maynard, Bradford, for his filly "Proxy," 1st premium, $10 00

Charles Boynton, Georgetown, for his sorrel gelding, 2d premium, 5 00

They would recommend mileage to Jacob Farnum of North Andover, for his brown mare.

For three year old colts—

To Wm. Peters, North Andover, for his Black Hawk filly, 1st premium, $6 00

Wm. A. Dane, Hamilton, for his black mare, 2d prem. 4 00

They would recommend mileage to James A. Dodge of Hamilton, for his bay mare "Bess."

For two year old colts—

To George B. Loring, Salem, for his Black Hawk filly, 1st premium, $5 00

Aaron Knowlton, Essex, for his black colt, 2d prem. 3 00

For one year old colts—

To Albert Kimball, Bradford, for his black filly, 1st premium, 4 00

The committee award no second premium in this class finding all the other colts stallions, and which therefore belong to class No. 12, and do not come under the inspection of this committee.

L. MAYNARD, in behalf of the Committee.

SWINE.

The Committee on Swine award the following premiums :—

To William H. Foster, Beverly, for his boar "Prince," 1st premium, $5 00

James A. Dodge, Hamilton, for his Chester county boar, 2d premium, 3 00

For Breeding Sows—

To Nathaniel S. Chase, Salem, 1st premium, 5 00

Wm. H. Foster, Beverly, for his Chester county sow, 2d premium, 3 00

To Wm. Foster, North Andover, for the best litter of weaned pigs, 1st premium, 6 00

Only one litter of weaned pigs entered.

JOSEPH AKERMAN,
JESSE SHELDON,
GEO. W. ADAMS,
WM. B. CARLTON,
} COMMITTEE.

SHEEP.

The Committee on Sheep report—

That three flocks were entered, viz : one flock consisting of eighteen sheep and five lambs, by Jacob Farnum of North Andover. One, by Richard S. Fay of Lynn, of twenty-one sheep, Oxford Downs crossed with common Vermont sheep ; and another flock of ten, by George W. Warner.

The committee award to Richard S. Fay, the first premium of $7.00 for the best flock of not less than 10 in number, and for the best buck, $10.00

For the second best buck, $5.00, to Joseph Farnum.
And also mileage on the flock of George W. Warner.

JOSIAH NEWHALL,
T. P. MUNDAY,
GEO. THURLOW,
H. L. MOODY,
} COMMITTEE.

PLOUGHING.

The Committee on Ploughing with double teams and the Michigan plough, report:—

That two teams were entered for premium, and they award as follows:

To Jacob Farnum, North Andover, 1st premium, $10 00
Henry A. Gould and John B. Jenkins, Andover, 2d pre. 6 00

Your committee are convinced of the utility of the Michigan plough in soil similar to that on which the ploughing match of the present year was held, the land being more easily prepared for the crop and more readily worked; but on rocky, hard land they have found the common plough to do the best work.

CHARLES P. PRESTON,
JOHN L. HUBBARD,
SAMUEL C. PITMAN,
HENRY KNIGHT,
PAUL D. PATCH,
} COMMITTEE.

PLOUGHING — DOUBLE TEAMS AND COMMON PLOUGH.

The committee on ploughing with double teams with any other form of plough, report:—

To Charles P. Preston, Danvers, 1st premium,	$10 00
Horace Ware, Marblehead, and James Cary, Swampscott, 2d premium.	9 00
J. Kittredge and George Smith, North Andover, 3d pre.	8 00
Hiram B. Allen, South Danvers, 4th premium,	7 00
Jacob Farnum, North Andover, 5th "	6 00
A. P. Fuller, North Andover, 6th "	5 00

LEWIS ALLEN, CHAIRMAN.

PLOUGHING—SINGLE TEAMS.

The Committee on Ploughing with single teams, report :—

To Franklin Alley, Marblehead, 1st premium,	$7 00
R. T. Jaques, Newbury, 2d premium,	6 00
Elijah Pope, Danvers, 3d "	5 00
Amos P. Swinnerton, 4th premium,	4 00

JAMES P. KING, CHAIRMAN.

PLOUGHING—HORSE TEAMS.

The Committee on ploughing with horse teams and with other ploughs than Michigan, report :—

To Daniel Richards, Danvers, (plough No. 73½ Ruggles, Nourse & Co.) 1st premium,	$7 00
Daniel Morrison, Rowley, (plough, Blake & Barnard) 2d premium,	5 00
William Ellis, North Andover, (No. 60 Robinson's plough), 3d premium,	3 00

They award mileage to William Russell of North Andover.

JOSEPH KITTREDGE,
WM. H. WALCOTT,
JACOB P. GOODALE,
SOLOMON NELSON,
SAMUEL HAWKES,
} COMMITTEE.

FARM IMPLEMENTS.

Next in importance to the power that guides, are the implements to be used in the labor of the farm. So many have been the improvements in labor-saving machines, that he that works without the use of these improvements, works to great disadvantage. In no branch of the labor of the farm, is this more apparent than in cutting and curing the grass of the fields. It is safe to estimate, that one half of the labor may be saved, in the cutting, spreading, and raking of hay, by the use of machinery best fitted for this purpose, moved by horse power.

To encourage the introduction of such machines, the Trustees have for several years offered liberal premiums, from the fund created for this purpose by the discriminating generosity of the President of the society. And when it was fully expended, so strongly were they impressed with the importance of these offers, that to a certain extent they continued the door open for further experiments. Fully impressed with the trust committed to our charge, we have spared no pains in calling attention to the subject; and on several occasions, the present season, have witnessed highly interesting experiments; the premiums having been offered for *experiments only*—statements in writing of which to be furnished to the committee. Of these, we have been favored only with three, all of which are appended to this report, and will be examined with an interest proportioned to their minuteness of detail.

The committee will speak of the several mowing machines they have seen operate, according to their impressions in the field.

1. *Eagle or Heath Mower*—no made by Nourse & Co. of Boston. This is a substantially constructed implement, weighing entire about one thousand pounds. It cuts a swath about four and a half feet wide—even and clean, *generally* clearing itself of the cut grass. It is not easy to point out any defect in the construction of the implement, though it requires more power to move it than one of less weight. The reputation it has attained led the committee to scrutinize its movements with

much care. They regret that no statement of its operations has been furnished them.

2. *Manny's Mower*—compactly and neatly built, weighing about 700 pounds, cutting a swath of 3¾ feet, with latest improvements; made by Adriance & Co. of Worcester. What can be done with it will best appear in the statement of James Cary of Swampscott, by whom it has been prefered and used for several years.

3. *Allen's Mower*—made by R. L. Allen of New York, whose description is hereunto appended. This implement is more used than any other in this vicinity. It is comparatively light and strong; seldom out of order, or in need of repairs. It is easily adapted to rough and uneven surfaces. What can be done with it, will be best seen by an examination of the statement of S. A. Merrill, of South Salem, by whom it has been extensively used for several years. It cuts a swath 4 feet.

4. *Danforth's Mower*—both double and single, was presented to our notice on the farm of George B. Loring of Salem, late in the season. It is so fully described in the intelligent statement of Dr. Loring, as to admit of no further explanation from the committee. It has no accommodation for the person who guides it; herein differing from all other mowers we have seen. It is made at Greenfield, Franklin Co., Mass., and is there in high repute.

In view of the before mentioned mowing machines, and all others the committee have seen operate the present season, we are of the opinion, that the work done by Allen's machine under the guidance of S. A. Merrill, is most worthy of commendation; and recommend that the first premium of $25.00 be awarded to him accordingly.

The committee have viewed a tedder, or instrument for spreading hay, an English constructed implement, imported by Mr. Fay, and entered by Dr. Loring—for which they recommend that the second premium of $15, be awarded.

The remaining premium of $10, they have divided into equal

parts, and awarded to Horatio L. Holmes, of Providence, R. I., for a garden weeder—and to A. B. Allen of New York, for a potato digger, presented at the show—both of which implements gave evidence of ingenuity and utility.

For the Committee, consisting of W. C. Waters, J. A. Putnam, P. T. Winkley, R. D. Rogers, and Wm. H. Little.

J. W. PROCTOR, CHAIRMAN.

SAMUEL A. MERRILL'S STATEMENT.

I present for the premium offered by your society, *Allen's Mower with latest improvements*, the same that I have used the past season on my own and my neighbors' lands. I have used it with a span of horses that I have owned for several years, weighing about 1000 pounds each.

During the past hay season I have cut about 300 acres; all but 75 acres of which were cut with this machine, the remainder with the old Allen machine. I have used the same horses throughout the season, and they remained in as good condition as when they commenced. I have averaged when at work from ten to twelve acres per day, and this without overworking the team. The average yield of the grass was about a ton and a half to the acre.

Although my average time to the acre has been about fifty minutes, yet I have several times cut an acre yielding a ton, in thirty minutes.

I had to grind the knives once a day, occupying about half an hour, and sharpen them with a whet-stone occasionally, as they needed it.

The trouble of keeping it in repair was very slight indeed. No repairs were made upon it during the whole season but by myself, and only in a single instance when one of the knives was broken. I supplied a new knife at a cost of seventeen cents. No other repairs were made or were necessary, owing to the perfection and simplicity of the machine.

I cut with it about 40 acres of second crop and found that it worked it as well as in first crop.

I do not mean to say that I have done all of this work myself personally. About one half of it was done by a young man in my employ; and although he commenced this season without any previous experience, he was, after a week's experience, enabled to work the machine as well as I could. The difficulty with a new begianer is more in the management of the team than of the machine.

I have given a fair trial to all the mowing machines that I have seen except the Danforth improved; though I have never used this one I have worked with mine by the side of it and had a good opportunity to observe its operations, and am clearly of opinion that the Allen machine is much superior to it in every practical point.

I have found that one of the greatest advantages of the Allen machine is in the fact that the knives are all well guarded so as to almost wholly protect them from injury by stones. Another great advantage is that the knives can be easily raised by means of a lever and wheel (without stopping the team) so as to pass safely over rocks and stumps eighteen inches high. This feature of the machine renders it quite advantageous in rough, stony or stumpy fields.

I have used, besides the Allen machine, the Heath, Russell, Manny, and the Ketchum machines, and have found none but the Allen to work satisfactorily.

Salem, Nov. 11, 1858.

JAMES CARY'S STATEMENT.

The machine which I offer and have operated for the premium the present season, is Manny's Improved, with which I have cut upwards of 80 acres of grass. The average time of cutting per acre is 50 minutes.

With regard to accidents I have been very fortunate, having broke but one section of the knives in the season. I have been

very much surprised at its little liability to get out of repair or so dull as to need grinding, having out 60 acres with once grinding the knives.

The great improvement in this machine over the old one, consists in its castor wheel, which takes all weight off the horses' necks, when it is broke up to move from place to place. It is also so constructed that if it is considered necessary in cutting lodged grass, the back can be removed in a few minutes, and leave the bare knife-bar like most of the other machines in use. In that case we must dispense with the use of the reel which I consider almost indispensable in going with the wind of a windy day; otherwise the driver must carry a long stick to poke the grass back as it is cut.

Another improvement is in the quicker motion of the knives, enabling it to start in the grass without fail, as certainly as some other machines did fail to start in grass, as your chairman saw at the first trial of mowing machines at the Pickman farm in South Salem, and I regret very much that the committee were not then present to view that operation, and see the ease with which one of my horses on the two horse mower cut a quarter of an acre of grass, and also whether it was as the spectators said, the best cut piece of grass on the field.

Swampscott, Nov. 10, 1858.

GEORGE B. LORING'S STATEMENT.

I take the earliest opportunity which an unusual pressure of duties would allow, to make a statement to the Committee on Agricultural Implements, of the Essex Agricultural Society. I enter two machines for premium, viz:—Danforth's Mowing Machine, constructed by J. W. Thompson of Greenfield, Mass., and a Tedder, purchased in England by R. S. Fay, for the Massachusetts Society for promotion of Agriculture.

Of the mowing machine, I would say that it comes very near the fulfillment of my ideas of what such an instrument should be. I conceive that agricultural machinery should be simple,

light, easily managed, and strong. These qualities should be possessed particularly by a mowing machine, the use of which comes at a season when the accumulation of business on a farm requires great rapidity of execution, and when it is impossible to be very fastidious in our selection of labor. Such a machine should be capable of doing its work on smooth land and rough, with or without an expert driver or machinist, with good horses and bad ones, in light grass and heavy, and without the exercise of great skill on the part of the driver, or the outlay of great strength or speed by the team. In this way alone can it be made really an economical and profitable appendage to a farm. Our lands are not lawns, and we cannot afford to make them so. It is impossible for us to hire skillful men, at a price within the limits of a farmer's means. Every farmer cannot expect to be able to devote himself throughout the haying season to a mowing machine. Neither can he afford to purchase a pair of horses well broken to this work alone.

I do not mean to say that the Danforth machine is perfect. But I can say that I have seen it work on my farm under circumstances which would have foiled any other machine I have ever seen used. My driver had never used a machine of the kind until I set him at work with this one. My horses are young and inexperienced. My grass was heavy, matted at the bottom and much of it lodged. My land is very rough. And yet the machine which I enter for premium performed its work perfectly well amidst all these obstacles. In draft it is very light and easy—never having worried my horses at all. It never clogs unless the knives are plunged into sods and roots, and even then, but seldom. It requires no clearing board, and cuts equally well in fallen and standing grass. It leaves the field smooth and without any "mane" between the swaths. It is easily managed, is conveniently sharpened, and can be driven against obstacles almost with impunity. I have used it in cutting my second crop, and found it as serviceable as in the first.

A one horse machine of the same invention has been used by me, and may be considered almost invaluable on a small farm.

The tedder I have used very extensively in spreading my hay. It is an *English* machine, strong, and rather heavy in its construction—but beautifully adapted to the work for which it

is designed. I have used it mostly with two horses. And I find that with this team and a driver, it will spread an acre of mown grass, much more thoroughly than the most expert man could do it, in less than ten minutes. It performs the nicest and most difficult part of hay making, the spreading of the hay, with wonderful perfection and despatch, and lessens the time required for drying, many hours. When I see how much hay is damaged for the want of proper spreading and turning, and see too how impossible it is to employ men who will perform this part of the work faithfully, I am led to believe that the tedder is one of the most useful labor-saving machines ever invented. And I know that in the uncertain season just past, when an hour's time was invaluable to the hay-maker, I have saved many tons of hay by the thorough and expeditious manner in which this machine does its work. I am convinced that it will do more work on ten acres of ground in two hours, and do it better, than ten men would or could in twice that time.

I trust so valuable a machine will soon be brought within the reach of all our farmers.

Salem, Nov. 5, 1858.

DESCRIPTION OF THE ALLEN PATENT MOWING MACHINE.

The frame is made of the best white ash, well seasoned and bound together in the strongest manner, by iron rods running through and through at each end, and screwed up with a heavy nut at one end and a bolt head at the other.

The gearing is of the best iron, and is very simple, being single spur and level, thus giving all the required motion with the least waste of power. The motion which propels the knives is so rapid as to enable the machine to cut equally well whether at a slow or fast gait, with either *oxen* or *horses*, and in grass however thick or fine. The machine will do good work when not mowing over one and a half miles an hour.

The finger-board and cutting bar are hung behind the driving wheel, by which arrangement it hugs the ground closely,

however rough and uneven the surface; it also glides over stones, hassocks, bogs, ant-hills and other obstructions easily, and settles immediately down to good cutting again. The shape of the shoe materially assists the cutting apparatus to pass over all obstructions easily, as it turns up at the forward end like a sleigh runner.

The hoist wheel attached to the shoe enables the driver sitting in his seat, and with the strength of two fingers, to instantly raise and lower the finger-board from half an inch to six inches, for the purpose of carrying it over cut grass or any object likely to obstruct it, and this can be done when the machine is moving rapidly along as well as when at rest. This is a great desideratum in any mowing machine.

The outside spring-wheel makes it quite safe to cut on side hills, at a large angle to their base; it also assists in accommodating the machine to rough surfaces.

The pole or tongue hangs loose and never bears on the necks of the horses.

The machine is easily thrown out or into gear in a moment by the driver as he is sitting on his seat.

The fingers or guards are made of composition of different kinds of cast iron, and are very tough and not easily broken; they are as strong as if malleable, and yet preserve the desired quality of hardness of the cast iron. The sides of their surface, on which the knives play, form a scissor edge with the knives, which makes cutting the grass much more easy.

The caps are open, and by their peculiar construction combined with the fingers and knives, no clogging or choking with grass takes place, whether fine or coarse, wet or dry.

The knives are made of the best steel, which takes the hardest temper without rendering them brittle. They are *corrugated*, which greatly increases their strength and enables a lighter knife to be used, thus considerably lessening the cost, also the weight of the cutter bar to be propelled, which owing to its rapid movement, is a matter of considerable importance to the team in hot weather. The tops of the knives are rasped edge, which assists in preventing clogging or choking of the fingers or guards when cutting fine, wet grass.

The movement is very easy, averaging by the best dynamom-

eters (when cutting two tons of grass per acre) about 350 pounds draft. It has been found by the test of the *side-dynamometer* to have *no side-draft*, which is another great desideratum, one pound of *side* draft being equal to about five to seven pounds of *direct* draft, according to my estimation; as it is like carrying a weight in the hand, with the arm extended, instead of close to the side.

The weight of the machine when cutting is 736 pounds, which includes pole, finger-board and all complete.

The driving wheel is covered and the seat secure and easy for the driver, making it quite safe for him to ride when driving.

I add a reaper attachment for ten dollars additional price to the mower. This is very simple and makes one of the best reapers ever used, as it cuts the tallest rye or other grain with great facility whether standing erect or badly lodged. The raker easily delivers the cut grain clear of the track, thus superseding the necessity of binders following to take up the gavels or sheaves as fast as the machine cuts.

A reel is not necessary for cutting either grass or grain, but if required, can be furnished at an extra charge of ten dollars.

POULTRY.

The Committee on Poultry respectfully report that they have awarded the following gratuities:

To John S. Ives, Salem, for gold-laced Seabright Bantams,	$1 00
John S. Ives, Salem, silver-laced Seabright Bantams,	1 00
Cyrus Thompson, South Danvers, Black Spanish,	1 50
Wm. H. Foster, Beverly, Rouen ducks,	1 00
John I. Ladd, Groveland, hen and fifty-seven chickens,	1 00
Charles G. Loring, Beverly, speckled dorkings,	2 00
Aaron Dodge, Beverly, turkies, from half-wild stock,	2 00

Aaron Dodge, Beverly, lot of China ducks,	2 00
" " " golden pheasants,	1 00
David Warren, Marblehead, Bolton greys,	1 50
David Warren, Marblehead, cross between Bolton grey and Brahma-poutre,	1 00
Charles Gray, Lynn, white dorkings,	1 00
E. W. Jacobs, South Danvers, black bantams,	1 00
Thomas N. Barnaby, South Danvers, Brahma-poutre,	2 00

In the exhibition of this year nine towns were represented by seventeen contributors, viz :—South Danvers 5, Beverly 3, Salem 2, Danvers 2, Groveland, Andover, Georgetown, Marblehead and Lynn, one each. Three towns were represented from the northern part of the county, the remainder were in the immediate vicinity of the location of the fair. This significant fact, the same that we have noted for the past two years in the vegetable department of the exhibition, certainly has an important bearing on the policy of having a permanent location for the annual fair.

In addition to the above named parties to whom gratuities were awarded, coops containing fine specimens of various breeds were exhibited by several gentlemen ; among these a fine lot of Brahma-poutre fowls, by Daniel Buxton, Jr., of Danvers, an old and reliable breeder of that variety ; also fine specimens of English speckled dorkings, by W. H. Foster of Beverly.

Communications were received from most of the exhibitors, the general characteristic of which was a great barrenness of interesting and profitable details. We present the following as containing facts which may be of value to the community.

Of the Brahma-poutres exhibited by him, Mr. Barnaby writes: "These chickens (7 pullets) were hatched the 10th of April. I have fed them altogether on common Indian corn and meal, with the exception of cooked, coarse meat once a week. They commenced laying the 1st of September, and have laid 106 eggs up to this date, Sept. 29th"—when four months and twenty days old. Of a cross between the pure Bolton grey and Brahma-poutre, Mr. Warren writes, "They were hatched the 20th of May, and the pullets commenced laying the 16th of September" —when four months and fourteen days old. The Seabright bantams exhibited by Mr. Ives, were exceedingly beautiful.

Mr. Ives presented the following statement: "The mother of the Golden Seabrights on exhibition (six in number) during the months of March, April and May layed 408 eggs, or 34 dozen in 92 days. I have kept at different times upwards of twelve different kinds of fowls, and as far as my experience goes, I pronounce the Seabrights the best laying fowls I have ever seen. Their eggs are larger in proportion to the size of the fowls than the eggs of larger breeds. The expense of keeping them is very small; I could not estimate the expense of keeping mine, having kept them mostly upon the swill and crumbs from the house, but I can safely say that the expense is not over one half that of larger breeds."

From accurate experiments made a few years since we found the cost of food consumed by a variety of black bantam was exactly one half that consumed by ordinary breeds. Mr. Ives exhibited eggs of his Seabrights, which are of about the average size of the eggs of the Bolton grey fowl of the first year's laying.

John I. Ladd, of Groveland, exhibited a hen with 57 chickens, all hatched by her and a portion of them raised by her during the past season. Mr. Ladd presented the following statement:—"The father of this hen was of the Cochin China breed and her mother a Booby hen. The father of the chickens is a Brahma-poutre, the mother a China Booby. The hen was set March 11th on 19 eggs, and came off April 2d with 17 chickens; she was with these 22 days. From April 21st to May 15th she laid 24 eggs, and on the 16th of May she was set on these eggs and came off June 6th with 21 chickens. Her chickens were given to another hen to bring up. She commenced laying again on the 15th of June, and laid 18 eggs up to July 2d. She was set again July 3d on these 18 eggs, and came off July 25th with 15 chickens, which were given to another hen. She commenced laying again August 5th, and laid 15 eggs up to August 21; she was set Aug. 22d on the 11 eggs, and came off Sept. 14 with 11 chickens, and they are now with her." This statement indicates a fowl of a very hardy constitution and wonderfully prolific both as a layer and as a setter. Mr. Ladd terms the hen a "Booby" hen; the hen is a large sized, deep bodied, short legged hen of the Eastern breeds

which were so widely disseminated a few years since, and might probably be as correctly called by either of the half dozen names by which these breeds are known. It appears that this fowl layed every day throughout the season when not setting or with her chickens, producing in the course of six months 57 eggs and 64 chickens!

We all remember the great "fowl fever," as it is termed, which spread through the country a few years since. It came and went—one of those spasms which sometimes afflict whole communities, that reach their climax so rapidly and pass away so speedily that many who are among the afflicted are confounded when the reaction comes, having a dim idea of a disagreeable dream. A few cool headed sharpers took advantage of the fashionable mania which possessed the public, and in a grand round of villainy fleeced hundreds of their fellow citizens whose enthusiasm had for the time got the better of their reason, and what is the most wonderful feature of the whole delusion—one of these sharpers mistook his scoundrelism for wit and put himself on record in a work which for impudent rascality will long wait for a compeer. Very naturally a great reaction has followed upon this inflated enthusiasm, and thousands can now see in fowls only the reminder of their former folly. "One extreme follows another" is a true adage, and what in those days with so many was the height of the desirable, has changed about and now become the height of the ridiculous,—for it is human nature that a man should scorn a thing which he has used after a foolish manner, rather than the folly that so used it. To many, therefore, any propositions relative to the improvement of the poultry yard sound weak or have the ring of imposition in them, the whole subject being to their minds matter for pleasantry rather than a subject worthy the earnest, conscientious attention of an intelligent worker.

But when the poulterer at the close of the season strikes his balance, does he consider the difference between a stock of good laying hens and a stock of poor laying ones a joke? Would he not *really prefer* for breeding purposes, a race good to hatch and rear chickens; and for his table a fowl with a full breast of fine, compact flesh to one with a breast as sharp as the hull

of a clipper ship with legs like her masts?—or a fat, juicy chicken to a lean, stringy one? and should a "bag of bones" be brought to his table would he not find it rather a difficult matter to pick a joke out of it? Now these and kindred traits of excellence belong to some breeds of fowls more than to others. Why, then, not select such breeds in preference to the chance stock that is usually found in the barn yard? Enormous sums and great labor are expended to procure the purest blood of the best races of horses, cows, sheep, swine and of every species inhabiting the barn yard, while poor chanticleer almost wholly excepted, since the late reaction is left alone to do his own crowing on his own dung-hill. Good traits just as certainly run in the blood of certain races of fowls as they run in the blood of certain races of horses, cows, sheep and swine. Why, then, should there not be as much outlay of labor and expense, in proportion to their value to the community, to procure pure races of excellent fowls as pure races of other stock?

Among the pure blooded breeds, the Black Spanish, Dorking, Bolton Grey, Guelderland, and a variety of the breeds which are known by the name "Brahma poutre," stand highest in practical value; yet the poulterer will find it true of all highly bred fowls that a finer nervous organization is usually accompanied with less hardiness of constitution when young; which in pure breeds is often aggravated by too close breeding. Let the amateur, therefore, not be discouraged if in endeavoring to introduce either of the above varieties into his collection they should prove very delicate; *let him try the same variety from some other stock*, before he finally rejects them on such grounds. To state briefly the characteristics of the above breeds, which have established characters for themselves,—of the Black Spanish we affirm that they are ready for the table at an early age, when they prove full breasted, small-boned and fine fleshed; they begin to lay at an early period, are almost "everlasting" layers, being seldom or never broody, and their eggs of superior quality, are noble sized, weighing from twenty-five to thirty ounces to the dozen. Their rich plumage with its green gloss renders them very attractive. The objections to them are their wandering propensities and their nervous, fly-away organizations, which takes away one of the greatest attractions of

fowls, docility. The Dorking is *the* fowl of old England. They mature very rapidly and have the fullest development of "white meat" of any fowl brought to the table. The eggs are very large and of excellent quality, and for all the natural uses of fowls, for the table, for laying and setting this breed ranks very high. The dorking is spreading fast over the country, and no doubt the public will gain thereby, provided only the hardier breeds are propagated. The white dorking is a smaller sized race than other varieties and of greater delicacy of constitution; some of the large speckled varieties will also be found to be so wanting in hardiness when young as to render them valueless to the public at large.

The Bolton Grey when pure is a fowl of great beauty and a most excellent layer. If "bred to a feather," while the neck is pure white the mottling of black will pass entirely around the breast—a characteristic very rarely seen even in the premium fowls of our fair. In a lot recently imported from England, I notice that on one of my fowls the mottling is improved upon, by a lozenge-shaped white figure developed on each feather, giving the bird rare beauty. The objections to the Bolton Grey breed are serious ones. They mature for the table slowly, and are then poor in quality, of small size, and cold, bluish hue. Their eggs are very small. The hens have a bad habit of dying without leaving on record any sufficient cause therefor; you go into the coop and find one of your finest fowls on the nest for two or three days in succession with a comb rather unusually red; (now this redness of the comb is a certificate presented by other fowls in proof that their internal egg-producing apparatus is in full working order); and you tell John that "really that Bolton Grey hen does beat all in the poultry line that was ever heard of, seen or read of; indeed you more than half believe she is but a mass of eggs slightly covered with feathers!" John filled with respectful admiration approaches the prodigy with stealthy steps, looks closely and—proclaims her dead! Probably all who have ever reared the Bolton Grey fowl have had some such unfortunate experience. The Asiatic breeds which were so widely disseminated a few years since have been a nut for amateurs to crack. They have generally been denounced as, on the whole, a nuisance. Let

them have fair play; many of them are ungainly gaunt gormandizers, maturing very late, and then a large boned, sharp breasted race; still there are some exceptions to the general rule. It will be noticed that three of the statements accompanying this report relate to one variety of the Asiatic breeds commonly known as "Brahma-poutre" fowl. The fowl termed "Booby," exhibited by Mr. Ladd, is undoubtedly nearly allied to that variety, and a better season's work than her's could not be anticipated from any breed of fowls. For early maturity no fowls could excel those of Mr. Barnaby, which began to lay at 4 months and 20 days from the egg, excepting those exhibited by Mr. Warren, which were a cross between the Brahma-poutre and Bolton Grey, and began to lay when 4½ months old!

With such facts as these,—and from what we know of these gentlemen we believe them to be facts,—we cannot but except the variety of the so-called "Brahma-poutres" from the sweeping condemnation so usually applied to the whole race of Eastern breeds of late introduction. These Brahma-poutres, one of the most reliable breeders of which is Daniel Buxton, Jr., of Danvers, are a handsomer fowl than most of the larger sorts. From personal experience of this variety we are persuaded that though in common with all their race they are heartier eaters than our common fowls, yet as they may be raised on coarser food, the final cost will be but little additional. They are no great scratchers, and but little inclined to wander. We would not be understood to recommend this variety in preference to the other above mentioned breeds; indeed, were we to raise a single variety, we should prefer others to them which had finer flesh and smaller bones; but among a number of varieties, this deserves a place.

One word to those who have pure stock in their possession. Do not so far yield to the temptation of cross-breeding, as to lose your original pure stock; for remember that a cross breed, however desirable it may prove, cannot be relied upon to renew itself until bred distinct for many generations; while with the original stock, with the particular crosses made, you have material in your hands to produce the like at your fancy.

JAMES J. H. GREGORY, CHAIRMAN.

MANURES.

There is no subject of greater practical importance to the agriculturists of New England than that of manures. Indeed it is impossible to cultivate our soil successfully without understanding their importance, and learning the more economical modes of preparing and applying them for the use of vegetation. This is a subject of vast extent, requiring, for a full discussion, great minuteness of detail, and for precise accuracy the frequent use of chemical terms which cannot be fully understood by the farmer unfamiliar with scientific knowledge, and I only propose, in the brief space proper for this report, to submit some general views upon the subject, avoiding the use of chemical terms, aware that by such a course I shall be open to the charge of want of exact precision.

In order to properly understand the value and effects of manures it is necessary to know how plants receive their food—what there is in the original soil which affords nutriment, and what part each constituent of the same performs in the great phenomena of vegetable life.

The plant receives its entire nutriment through the pores in its leaves and in the fibres of its roots, which are so minute as not to be discernible by the naked eye. Consequently, everything that feeds it must be in either a liquid or aeriform state. In no other condition can nutriment enter into the composition of a plant. Through the leaves, it is supplied by the air aided by the light and heat, with gases necessary for its support, and from snows, rains, dews and evaporation, it is supplied with moisture and nutritive substances in minute solution. So much is received through this medium that some kinds of plants are supplied almost entirely through their leaves. But important as are the leaves in sustaining the plant, it is of little importance in this connection to inquire into the mode in which they receive and impart nutriment, as the amount cannot be affected by artificial means. The other medium through which the plant receives its support, is the root fibres; and this is of by far the greatest practical importance, as this support may be in-

creased almost indefinitely by supplying to the soil substances necessary for vegetation, in which it is deficient.

Soils are composed of clay, sand, lime, mineral substances, and the mould of decayed or decaying vegetation. The clay and sand, excepting in locations where lime abounds, compose by far the largest portion in weight—the mineral substances are in minute quantities, and the mould, although diffused throughout the whole soil and apparently a considerable portion of it, consists of only from 3-100 to 5-100 in weight of the whole, in average soils. All these substances perform an important part in the support and nourishment of the plant, and for its successful growth all are requisite in proper combinations. Yet the mould and mineral substances comprising together not more than 5-100 to 6-100 of the soil are substantially all that afford direct nourishment to the plant. The clay and sand although by chemical action forming an ingredient of some plants are principally and almost entirely useful for the purpose of giving mechanical support to the plant, and retaining and imparting nutriment for its use. They constitute the foundation to hold the plant, and the repository of its food, and as such they are of the greatest consequence. The fertility and permanent excellence of a soil depend very much upon the proportions and combinations in which these earths are found.—Every farmer understands the difference between clay or heavy soils, and sandy or light soils; and that the best soils are those which are composed of both in such proportions as not to be too stiff and hard with an excess of clay on the one hand, or too dry and porous with an excess of sand on the other hand. In proper combinations the clay in the soil acts to retain the moisture and the nutriment, and prevent too great an extension of the roots; and the sand acts to loosen, render more friable the soil, and to admit into it the heat and the air in proper quantities.

If the clay is in excess, its injurious effects are—

1st. It retains more moisture than is needful for the plant.

2d. It attracts and holds the nutriment, and does not impart it sufficiently for the proper nourishment of vegetation.

3d. It renders the soil hard, and difficult to cultivate.

4th. It resists the proper extension of the roots.

5th. It prevents the proper effects of the air and the heat.

6th. In dry weather, it cracks and admits the air directly upon the roots, which is always injurious.

If the sand is in excess, its injurious effects are—

1st. It has but little adhesion to the nutritive matter, which is quickly washed out, or is supplied too freely to the plant, consequently the soil is quickly exhausted.

2d. It does not sufficiently retain the moisture for the plants.

3d. It does not attract fertilizing particles from the atmosphere.

4th. Being a good conductor of caloric, it transmits to the roots immediately the influences of sudden changes in the temperature of the atmosphere.

These facts show the great importance of ameliorating clay land with sand, and sandy land with clay. In many parts of England this has been done with most successful results, and there is no reason why our farmers may not by this method greatly benefit their poorer lands, as in most instances, beds of clay may be found in the vicinity of sandy lands, and sand in the vicinity of clay lands. Probably nothing that can be done to such lands will be more permanently beneficial.

Besides the clay and sand, the composites of soil are mineral substances and vegetable mould, in the quantities before stated. These afford the nutriment to the plant. The term vegetable mould or humus, has been used by some writers with a more extensive signification than that in which I propose to employ it in this report.

It has been used to define the entire organic and inorganic, or mineral substances of a plant, in a certain state of decomposition and solution. It is a dark, and when moist, an unctuous mould, produced not only by the corruption and decay of the falling leaves, the plants themselves, and the roots remaining in the ground, but also by the putrefaction and decomposition of animal matter, although the latter contains the ingredients of the former in different proportions and is especially rich in ammonia. By mould, as I shall use the term, I include

only the organic matter distinct from the mineral substances in cohesion with it, and this includes by far the largest portion in amount and weight of the decomposed matter. This mould of itself, is of great benefit in improving the texture of the soil, in rendering heavy land looser and warmer, and light soil more tenacious. And if it had no other effect it would be of very great value to the land. But when turned by the spade or plough, and exposed to the air, moisture and heat, and acted upon by the mineral substances in combination with it, it becomes gradually still further decomposed, and furnishes continual nourishment both in a liquid and gaseous form to the roots of the plant. It also acts upon the mineral substances in the soil, rendering them soluble, so that they can be received by the plant. The amount of this mould, necessary for the support of vegetation in soils of proper compositions, is comparatively very small, as such lands may be cropped for a series of years without their becoming exhausted. The comparative value of the mould as food for the plant, has been much considered by scientific men of the present century, and without entering into the discussion it may be sufficient for my purpose to state that all regard it as of very great importance to vegetation. From its intrinsic value as containing many of the elements of the plant, and its slow decomposition, and as a means of improving the texture of the soil it is second in importance to no other material in the soil. In addition to its effects when decomposed to the extent above stated, there is no doubt that in the process of such decomposition it eliminates much that affords nutriment to the plant, particularly of ammonia to which I shall hereafter refer.

The mineral substances in the soil are also necessary, both in affording aliment to vegetation, when dissolved, and as stimulants to the soil. They are both indispensable for the proper growth of the plant.

But in considering the practical value of these nutriments to vegetation, we must always take into consideration the situation of the soil with which they are incorporated, and the exposure to air, heat and moisture to which they are subjected. Land rich in fertilizing matter, yet excessively moist, is unproductive, and grows nothing but sedge and other coarser grasses. The land becomes sour, and will be nearly valueless, unless

drained and exposed to the proper action of air and heat; and if exposed to excessive heat or dryness, the fertilizing substances will not properly act upon each other, as a certain amount of moisture is always necessary for the preparation of the food for the plant. The frequent stirring of the soil, in good situations, is also necessary to quicken the action of the fertilizers it contains. This is so important in its effects, that some of the early writers regarded it as the sole means of increasing the fertility of the soil.

Keeping these general statements in mind, we can more readily appreciate the importance of increasing the fertility of, or replenishing the soil with nutritive matter. And in considering this subject I shall first refer to those manures which are more commonly used, and better known to our agriculturists, having a view to the permanent improvement of the land, rather than to the greatest immediate effect of fertilizers.

In other countries, and in some portions of our own, devoted principally to gardening, the crop cultivated annually is looked to for a remuneration. But with us, the land is cultivated principally with a view to improve it for the subsequent crops of grass, and our farmers look more to the length of time it can be kept in grass without cultivation, than to the crop which is the immediate result of it.

All the ordinary or barn yard manures, contain matter which is convertible into mould, and mineral substances. Those which have a larger portion of the latter are more forcing or stimulant in their operation, and some in their putrefaction and decay afford more nitrogen in the combination known as ammonia, than others. This is very important to the growth of a plant. It is particularly stimulating to vegetation. Comparatively speaking, the solid excrements of all herbiverous animals are rich in mould-forming substances. The urine is richer in mineral substances and nitrogen, and consequently, more stimulating. Together, they furnish the most complete manure for plants, as they combine *all* the substances both organic and inorganic, which are necessary for the perfection of a plant and its seed. The excrements of domestic animals are relatively lasting in their effects in the order below stated, cow manure

being most lasting and least stimulating, and sheep manure being most stimulating and soonest expended.

1st, Excrements of horned cattle.
2d, " " swine.
3d, " " horses.
4th, " " sheep.

The value of the excrements of the above named animals, particularly swine, is affected very much by the quality of their food.

The following figures taken from the latest edition of Stockhardt's Chemical Field Lectures, show the constituents of these different excrements. The figures are based upon the weight of the excrements and not upon the *amount*, as we usually consider them. This is important to be remembered in this and subsequent tables as there is a great difference between the weight of a cord of cow manure and a cord of horse manure. The figures of course are only approximate, although based upon actual experiments.

1000 pounds of fresh excrements contain :—

CONSTITUENTS.	Of Cows fed during winter.	Of Horses fed during winter.	Of Sheep fed upon Hay.	Of Hogs fed upon strong fodder.
Solid dry substances in general.	160	240	420	200
Nitrogen therein	3	5	7½	6
Mineral substances therein	24	30	60	30
Consisting of				
Potash and Soda	1	3	3	5
Lime and Magnesia	4	3	15	3
Phosphoric Acid	2¼	3½	6	4½
Sulphuric Acid	½	½	1½	½
Common Salt	1/10	—	¼	½
Silica	16	20	32	16
Approximate value in money	54	90	135	96

The following figures from the same author show the constituents of the urine of different animals and their comparative value.

1000 pounds of fresh urine contain :—

CONSTITUENTS.	Of Cows.	Of Horses.	Of Sheep.	Of Hogs.
Solid dry substances (extract)	80	110	135	25
Nitrogen therein	8	12	14	3
Mineral substances therein	20	30	36	10
Consisting of				
Potash and Soda	14	15	20	2
Lime and Magnesia	1½	8	6	½
Phosphoric Acid	—	—	½	1¼
Sulphuric Acid	1½	1½	4½	—
Common Salt	1	2	2½	5
Silica	$\frac{1}{10}$	¼	—	—
Approximate value in money	120	170	200	45

The following calculation by Stockhardt, shows approximately the value of the excrements which these animals furnish in a year :—

One *cow* furnishes yearly :

		£	s.	d.
In excrements,	20,000	4	10	0
In urine,	8,000	4	1	0
Total,	28,000	8	11	0

One *horse* furnishes yearly :

In excrements,	12,000	4	10	0
In urine,	3,000	2	5	0
Total,	15,000	6	15	0

One *sheep* furnishes yearly :

In excrements,	760	0	9	0
In urine,	380	0	6	9
Total,	1,140	0	15	9

One *hog* furnishes yearly :

In excrements,	1,800	0	16	10½
In urine,	1,200	0	4	6
Total,	3,000	1	1	4½

From these calculations it will be seen that the urine is of great value and that it is important for every farmer to use freely litter, muck or other substances for its absorption.

Very important questions arise as to the time when barn yard manure should be put into the ground, and the manner in which it should be kept until so used.

Practical agriculturists by various experiments upon a large scale, have demonstrated that barn yard manure turned under the soil in a fresh and unfermented state is of greater value than when left to rot and ferment in the dung heap, even when that is properly protected; and the practical results in this accord with sound theory, as in the process of fermentation and decay, gases escape which are of value to vegetation. If not immediately turned under the soil, manure should be kept where it will properly ferment, without being exposed to heavy rains, and if so kept, the amount of gases which escape is not great, and the mineral substances are not affected, and manure rotted in such a position, although much reduced in quantity, is more immediate in its effects, and nearly as valuable in its properties, as when carted upon the land in a fresh state. Experiments show that the amount of actual loss in manure thus cared for is very slight. But if the manure is exposed to heavy rains its depreciation is very great, as a large portion of its mineral substances is washed from the heap and lost. In accordance with these views I would suggest whether there is any appreciable loss from spreading barn yard manure upon the surface of the ground intended to be enriched, and allowing it to remain for a length of time without being covered with the soil. Being thinly spread there will be but little fermentation, and the mineral substances which will be separated from it by the rains will be washed into the land where they are needed. And this may aid in settling the question of the economy of top dressing grass land with barn yard manure. I think that by so doing but little of the value of the manure is lost, particularly if properly rotten when applied, and the land receives substantially its full effects without the expense of turning the soil. If thus applied it is better that it should be done early in the spring so that it will get partially incorporated with the

soil and protected by the growing vegetation, before it is subjected to the scorching droughts of the summer.

One of our most intelligent and successful farmers, Samuel A. Merrill of Salem, informs me that for the three past seasons he has, early in April, spread upon two or three acres of grass land, fresh barn yard manure, free from litter, at the rate of about four cords to the acre, and that the results have been most satisfactory.

In addition to these manures, human excrements, both solid and liquid, are rich and stimulating in their character, so much so, that they should only be used composted with other manures needing stimulants, or with common soil. Used in this manner they are of great value to the farmer.

Animal matter is also a very important manure from the mould-forming substances it contains, from its mineral ingredients, and the amount of ammonia it creates in the process of putrefaction. It is one of the most active stimulants, and should always be used in compost, otherwise the ammonia will quickly escape, and its effects will be of little value. The harder portions of the animal such as the horns, hoofs, hair, &c., are not so readily decomposed.

Straw, hay, leaves and decayed vegetation are of great importance in improving the soil, as they decompose but slowly, and furnish a large proportion of mould. They are of most importance in combination with other quicker manures, as they absorb the liquids and the gases, and their decomposition is accelerated by the stimulants with which they come in contact.

The above described are the ordinary manures used by our farmers, yet there is another source of fertility, which, although resorted to by some, is not sufficiently appreciated by any. I refer to the rich deposits of our intervales, which we call muck. This term has in other places a more general signification, but with us it is limited to define this deposit.

There is no portion of the country which contains so large an amount of this fertilizer as this section. There is hardly a farm in Essex county which is not rich in this material, and yet until within the last few years it has been but little used. Muck varies essentially in its constituents and in its value. The best is the deep, dark colored deposit, free from large roots, found in low

lands, which, when dug up and exposed to the air and the action of the frost, becomes crumbled and fine, having very much the appearance of ashes. A large per centage of this is vegetable mould, which has remained substantially in the same state for centuries. It also contains a considerable amount of mineral substances, but from the great quantity of moisture to which it has been continually subjected, the mould has not decomposed. From the same cause, tannin and acetic acid have been formed in it, which renders the muck sour and unfit in its original state for the support of vegetation. But when exposed to the air and frost, and its sourness corrected by mixture with stimulating substances, it becomes one of the most valuable fertilizers.

Peat muck is also an excellent fertilizer, but, from the slow decomposition of the roots which compose it, it is of less value than that before described.

Pond muck is the deposit in the bottom of ponds, composed mostly of substances washed from the adjacent lands, and contains less vegetable mould than either of the other kinds.

Muck may be composted with *any other* manure. All kinds of barn yard manure, particularly horse manure, corrects its sourness, adds to it the necessary salts, and renders it suitable to be applied to the soil. It is particularly valuable in the barn yard, as it is a powerful absorbent of the liquids, which more than any other portion of the manure, operate beneficially upon the muck. Wood ashes, leached or unleached, dead animals, horns, hoofs, hide-cuttings, &c., are also of great value to compost with it. Lime is also valuable in compost with muck and either of the above manures, as it is a good neutralizer of acids. but is not sufficient alone with muck. From the large quantity of mould which muck contains, its effects are very lasting, indeed more so than those of most any other fertilizer, both in afford ing nourishment to plants, and in improving the texture of the soil.

Any farmer who has a good bed of muck on his farm, can make annually, at little expense, at least as much and as valuable manure from this source, as from all the stock he keeps, and I know of some farms in this county which have been brought to a high state of cultivation, on which more than one-half of the manure that has been applied, has consisted of this fertilizer

properly composted. I have seen the finest crop of corn grown on light land the first year of its ploughing, with no other manure than muck exposed one winter, mixed with a small quantity of leached ashes.

Sea manures, comprising rock weed, kelp and muscle bed, are valuable as manures, from the fertilizing substances they contain and from the salt they furnish. The muscle bed contains much animal matter which is valuable, particularly in compost. These manures are much used upon the farms bordering upon the sea-coast, and their great value can be seen in the fertility of the lands on which they have been used.

Salt is also important to use in moderate quantities, upon most lands and in compost. It furnishes some food to vegetation, and is a neutralizer of acids. Its effects when applied on some lands in the county, have been very marked. But great care should be used that it be not applied in too great quantities.

Wood ashes, leached or unleached, are also of great value as a manure. Ashes comprise all the incombustible ingredients of plants, and are not only lasting in their effects, but, from the mineral substances of which they are composed, are strongly forcing. It is doubtful whether there is any more economical fertilizer that can be used than ashes, at the prices for which they are usually sold to the soap boilers. There is not that difference in the value of unleached and leached ashes which many suppose. By leaching a considerable portion of the potash is extracted, but this is compensated for in part, by the lime and other substances mixed with the ashes in the leaching, and the leached ashes combine more readily with the salts in the atmosphere. But it should be remembered that ashes do not comprise all that is necessary for the growth of a plant, and that from their stimulating properties they serve to accelerate the decomposition of the mould with which they come in contact, and if used upon the same land for successive years without other manures, will tend to render the soil unproductive.

Coal ashes are not valueless, as is supposed by many. They contain some mineral substances, and will more than repay the expense of putting them upon the land.

Lime, of which there is comparatively a small amount in most

of our soils, affords a direct nutriment to vegetation. Applied in large quantities it improves the texture of all lands except those which are excessively sandy. It acts upon the fertilizing matter in the soil both upon the mould and the mineral substances, decomposing and rendering them soluble for the use of the plants. It is injurious in combination with animal manures or common dung, as it has a tendency to produce insoluble compounds. It should never be composted with either except when necessary to prevent the noxious exhalations from animal putrefactions. It is a most powerful neutralizer of injurious acids, and is consequently most beneficial in combination with muck, or when spread upon sour lands. Upon lands containing a sufficient amount of lime, which is indicated by a luxuriant growth of clover, peas or beans, an additional application will be useless or positively injurious; whilst upon lands in which it is deficient, which is indicated by the coarse grasses they produce, the application of lime is most beneficial.

Bone manure has been used with most successful results within the last few years, and its effects upon the land are lasting. But great care should be exercised in purchasing it, as much that is offered in the market as ground bone, is a spurious and almost worthless article.

In addition to the fertilizers to which I have referred, there is another which has been used somewhat extensively for the last few years. I mean guano. It consists of the excrements of sea birds which have lived upon fish. The most valuable is that which is brought from the rainless regions of Peru. Its almost entire value consists of the nitrogen or ammonia it contains. The amount of mould-forming substances and mineral particles in this manure is so small as to be hardly of any appreciable value. The chief office of ammonia is to accelerate the development of vegetation, and it furnishes but little of the constituent elements of plants. Therefore guano is strictly a concentrated, forcing and stimulating manure. Its action is immediate and its operation quickly over. It is mostly expended the first season. But it has not acted alone. It has stimulated the plants to search for and take up the fertilizing substances in the soil, so that each year of its application the land has become poorer. Its effects, when applied alone, except for the present

crop, is positively pernicious, and the result of its continued use, alone, must be the exhaustion of the soil.

Artificial manures, also, have been recently used to a considerable extent; but if any one expects to see good results from the use of the best of them alone, he will be grievously disappointed. None of them contain all the food which is necessary for the growth of vegetation, and it requires a scientific knowledge which few farmers possess, to understand where and how to apply them to any considerable advantage. This may be said of the best of artificial manures. But there are many that are largely advertised and recommended, which are not much, if any better than common wood scrapings; and even if a farmer thinks he has sufficient scientific knowledge to properly use artificial manures, he must add to his fund of information a knowledge of chemical analysis, or purchase his special manures of dealers upon whose knowledge and integrity he can implicitly rely.

WILLIAM D. NORTHEND, CHAIRMAN.

FARMS.

The Committee on Farms report:—

That for a number of years past, comparatively few entries for the premiums on farms, have been made. The Trustees of the society have from time to time endeavored to encourage competition by varying the premiums both in amount and the terms on which they were offered. So far these endeavors have failed to effect their object. The fact still remains fixed, that there is a great barrenness of entries in this department. The subject still merits the careful consideration of the Trustees, therefore, whether the end which they have in view by offering these premiums may not be attained in some way, different from the modes hitherto adopted.

This year a single entry only, has been made. Samuel Raymond of North Andover, is sole competitor. His farm was purchased in 1850. It was then in an exhausted and dilapidated condition. He has improved it in all respects. The walls have been in a good measure rebuilt, fruit trees large in number and variety have been put out, a portion of the meadow is in an advanced state of reclamation, and an immense quantity of small, loose stones have been removed from the high lands. Taste has also been exhibited in transplanting forest trees around the house and in other arrangements which have undoubtedly wrought a material change in the appearance of the place.

The farm contains about 55 acres, all of which except the wood land is now in grass or under cultivation, so that it lacks one important constituent necessary to a complete farm—that is, a good pasture. Being destitute of a pasture, Mr. Raymond had no dairy. We were told that his two or three cows furnished sufficient milk and butter for his own family only. They were fed in the barn until after haying and then teddered in the mowing fields. Consequent upon the absence of a dairy was a vacancy in the pig pen. There were no swine seen by the committee. Mr. Raymond is industrious in the manufacture of manures by composting, thereby making the most of the means which a limited stock and an unoccupied pig-pen can supply. The committee were well satisfied that he had improved his farm very much and that in most particulars his management was judicious. In one respect he furnishes an example worthy of all imitation and so rarely to be met with among farmers that it cannot be too highly commended. Mr. Raymond has kept accurate farm accounts, ever since the place came into his hands, showing the processes and results of all his operations in a pecuniary point of view, and ready for reference at all times. This alone entitles him to much consideration. But the committee taking into view the entire deficiency of pasturage, the absence of a dairy and the want of swine did not think this a farm so complete in all its appointments as to entitle it to a premium. They supposed that a farm, however worthy in other respects it might be, if entirely deficient in these important particulars, did not so nearly approximate to

perfection, as in fixing upon the conditions of the offer, the Trustees intended a premium farm should do. The conclusion arrived at by them is to recommend that a gratuity of $30 be awarded to Mr. Raymond for the improvements which he has made, and especially for the valuable example which he furnishes in keeping correct accounts of the receipts and expenses of his farm.

Almost by accident two of the members of the committee visited the farm of Leverett Bradley, in Methuen. In 1848 this farm received the highest premium then offered by the society. The same year Mr. Bradley also received the highest premium for improving wet meadows. That tract of meadow, which was the most extensive of its character that had then been improved, remains as it was without having been disturbed by plough or spade or even top-dressed. Its product now averages a ton and a half to the acre, proving conclusively not only how well the meadow was drained in the first instance, but the enduring value of such land when properly reclaimed. Patches of grass land in some specially favored localities and small in extent may be found throughout the county, which constantly yield fair crops of hay without expenditure upon them. We think, however, that nowhere else can there be found a tract of thirty acres which has had nothing expended upon it for ten years and more, that produces on the average a ton and a half of good hay to the acre and bids fair to do it for years to come.

But what especially attracted the attention of the committee on Mr. Bradley's farm was another tract of 12 acres, the larger part of it meadow, which one year ago was covered with a thick growth of wood. This was cut off last winter and produced about 350 cords. Immense ditches were then opened through and around the meadow part of the lot, for the twofold purpose of draining the land and furnishing material for compost. In the spring a large gang of men were put upon it with axes, spades and bog hoes, and the whole surface turned up to a sufficient depth for cultivation. At the time it was seen by members of the committee, the entire twelve acres had not only been dug over and fitted for the seed, but every stump and root which was large enough to obstruct its easy cultivation,

had been taken out from the meadow portion of it and were nowhere to be seen. They had been converted to ashes and those ashes had been spread over and were hastening the decomposition of a peaty soil, deep enough to supply self-fertilizing material for a half dozen generations, in its gradual decay. An instance of improvement so extensive, so thorough, completed in so short a time and in such a manner—for it was all done by hand labor, is without its parallel in the county. Mr. Bradley's energy can be equalled only by his perseverance, and may his strength be sufficient to keep them both in active exercise for many years to come.

There is a single topic on which the committee desire to make a suggestion. We are often reminded in the speech and in the journal agricultural, that our great mistake is in cultivating too much land; that it will be for our profit to till less and manure better. To do only so much as we can do well, is a good maxim and beyond all cavil. We should never keep more stock than we can feed well, have no larger breadth in hoed crops than we can weed well, and never attempt to cultivate any more land than we can manure well. In the judgment of some of the committee at least, quality is thought to be of as much importance as quantity, in farming calculations. We cannot afford to cultivate *poor* land. If it is necessary to be cautious about cultivating too much, it is quite as necessary that a sound, calculating, business-like judgment should be exercised in choosing those portions of the farm for the application of labor and manure which will make the largest return for the expenditure made upon them. Now it is a fact not requiring proof, that to a great extent, the very opposite practice prevails. Lean, hungry, barren or worn-out soils, which have no strength in themselves, are planted year after year. Consequently they must be annually supplied with all the elements of fertility which they possess. The reasons why they are selected for cultivation are various. One probably is this, that they would produce nothing if let alone; another, that the predecessors of the present occupants always treated them in this way. Often perhaps the cause may be that they are more conveniently accessible than other and stronger parcels of the farm. Whatever it may be, it is certain, that, if a careful account was kept, in nine cases out

of ten their meagre products would not pay for themselves. Cultivators of such soils do not count the cost. Were they called upon to take a starving ox and fatten him for the butcher, their first step would be to ascertain if the expense of feeding would not exceed the value of the animal when fattened. And yet without giving the matter a single thought they take a very lean piece of land, manure it, labor upon it, harvest its scanty product which is not worth the cost of production, and never have a suspicion that it is not an exhibition of economy in farm management. But in many instances the poorest lands of a farm are adjacent to the buildings, and the question will be asked, what can be done with them. We answer, sow them with birch seed, cover them with white pines, if they must be cultivated, sow them with buckwheat and keep bees, or throw them down to permanent pasture and feed them with sheep or let them run to waste. The last is better than to throw away money upon them. If manure and labor were applied by us only to those portions of our farms which produce tolerably well without either, they would yield double, quadruple in some instances, tenfold more than many of the fields do upon which they are now wasted. It will at all times make the difference between getting about half what the manure and labor is actually worth or a double profit on both. Those portions of a farm in themselves fertile always yield an income. Those which are in themselves unproductive, work upon them and manure them as you may, never do. The loss sustained by their cultivation is a charge upon the rest of the farm. The good acres have to carry on the poor ones. Now if men will expend their manure and labor upon those portions of their farms which because they had strength enough to produce tolerably well of themselves, have received no artificial aid, or have been neglected from other causes, they will do a wise thing. Many old fields cultivated for generations, will be abandoned. Many persons who cultivate at a loss now, or are just able to make both ends meet, because they are fortunate in the possession of sufficient good land to make up the deficiencies of the bad, will find to their astonishment, that they have got money in their pockets at the year's end. If it costs as much to feed a horse as he will earn, he is worthless; an ox is worthless, if it will

cost as much to fatten him as the butcher will give for his carcass; a debt is worthless when the expense of collection will exceed the amount of it; and so is a piece of land worthless for the purposes of cultivation when a crop cannot be obtained from it except at an expense equivalent or more than equivalent to its value.

If we have been a little prolix on this topic, its importance must be our justification.

Mr. Raymond's statement, appended to this report, exhibiting what he has done and his mode of keeping accounts, is recommended to the careful reading of every farmer, who has not a good system of his own.

T. E. PAYSON, for the Committee.

SAMUEL RAYMOND'S STATEMENT.

The farm I offer for premium is situated in North Andover, on the Salem and Andover turnpike, 4 1-2 miles south-east from Lawrence. It lies in nearly a square body; contains about 55 acres; was purchased by me on the 11th of Nov. 1850, and was at that time divided as follows, say,—2 1-4 acres in tillage, 17 3-4 upland mowing, 13 in pasture, 7 in peat or bog meadow, and 15 in wood. The soil on the three first named is, what I suppose is called a clay-loam, of good uniform quality and depth, resting upon a pan of very hard clay-gravel. From the time of my purchase to the present, I have kept daily accounts of the cost of all crops, improvements, &c., connected with the farm, with such alterations and additions from time to time, as seemed to me necessary. A portion of these accounts are condensed and make a part of this statement.

When I came in possession of the farm, it was much run down; the buildings required large outlays; the interior walls were low and crooked; the grass on the mowing lands was thin and light; all the upland abounded in fast rocks; the pasture

had grown up to bushes and birches, with a few sapling oaks and maples; the fruit trees of which there was about 400 apple, 10 or 12 pear, and 5 or 6 peach, were, most of them, in good condition.

As nearly all the division walls required rebuilding, I determined to place them in such manner as would be more convenient for working the land by improved implements and otherwise, and at the same time improve its appearance. To accomplish this, I laid out a farm road from my barn, (which stands in the centre of the front of my upland on the easterly side) 20 feet wide and 50 rods long, in a straight line, and parallel with my northern boundary wall, to a point 21 rods distant from my rear or westerly wall, then turning at a right angle and running south in a straight line 28 rods to the meadow, then dividing the upland into two about equal parts, and leaving on one side of the road, 8 acres of the mowing, a field of 1 acre, 7 1-2 of the pasture, and an orchard of 1 3-4 acres. Trenches were then dug on each side of the road and filled with small stone, the old cross walls, excepting that between the orchard and pasture, were then hauled and set up anew, leaving gateways at suitable distances. Such parts of the old walls as were not wanted for this purpose, and a pile of stubble stones 22 feet long, over 12 wide, and nearly 4 feet deep, have been carted off. One of the walls removed from this field, had been built double, with small stones, which had fallen and covered the ground, in some places to the depth of 8 feet. Its length was 379 feet. The fast rocks have been dug out, blasted and laid in a cellar wall, under the barn, 83x28. The wood and bushes have been cut on the part formerly in pasture, the land ploughed, 6 1-2 acres of the same have been cultivated and thoroughly cleared of stones, and 5 1-2 acres seeded down to grass, on which I set in the fall of 1856, 200 Baldwin apple trees. On this field have been laid 60 rods of stone underdrain.

On the other side of the road referred to, were two fields of mowing and tillage; the one contained about 2 1-2, the other 8 acres, and about 5 1-2 acres of the pasture; the wall dividing the two latter, lay along on the top of a sharp ridge for about 48 rods. For many reasons which it is unnecessary for me to detail, I moved this wall about 60 feet, to the foot of the ridge,

and there relaid it. The intermediate land has been cleared of all loose stone and another large pile of the same; I have ploughed and seeded it down to grass. The partly built wall dividing the lots of 2 1-2 and 8 acres, has been removed and laid around my barn-yard, in a wall 5 feet high and 4 feet wide at the base. These improvements left the field with about 11 1-2 acres, on which I set in 1851 and '52, 284 apple, 225 pear, 285 peach, 34 cherry and 5 plum, in all 833 trees, all budded or grafted with the best varieties. None of these trees have ever stood in grass; the land under them to the width of 9 or 10 feet being constantly under cultivation. They have made rapid growth since they were set. Some of these apple trees measure at this time 16 and 18 inches in circumference; over 200 of the latter have borne the past season, from 1-2 bushel downwards, the peaches about 20 bushels, the pears a few, and the cherries about 1-2 bushel. No cattle have grazed this land since the trees were set. Of the 4 1-2 acre pasture adjoining the above, I have this year ploughed and planted 2 1-2 acres. As the cultivation proceeds, the stones, &c., are collected into every fifth furrow, to be carted off after the crop is harvested.

Besides the improvements stated above, I have laid a bank wall in front of my house 30 rods in length, with a buckthorn hedge along the line of this for 80 yards. These walls with several small pieces in various parts of the farm, make a total of 220 rods built, and 190 rods removed; many repairs have been done on the buildings; nearly all the old apple trees have been grafted; all the upland has been ploughed, planted and cleared of stones, excepting 3 acres, in doing which I have carted off over 3000 loads exclusive of those used in walls and their trenches; two brick cemented cisterns have been built to increase my supply of manure; fruit and ornamental trees and shrubs have been planted round the house; and I have also set 400 currant bushes, and a few grape vines, raspberries, &c.

About 3 acres of the peat meadow have been broken up at a large expense; I have cut the ditches wider and deeper, and have cut the outlet down 2 feet, through solid rocks, for 120 feet.

The end and object of all this labor, has been the production of fruit and grass, ultimately to bring the whole 40 acres into these crops, and to secure the same with the least possible expense.

The total cost of all improvements exclusive of my own labor and interest, was on the 1st of April last, $3,847 59
Add the amount I paid for the farm, $3,100 00

Making the cost on the 1st April, 1858, $6,947 59

As regards the crops, expenses, &c., I refer you to the following accounts, which have never been kept with a view to their future publicity, and all I claim for them is, that they are correct so far as they go. Such omissions as I am able to detect will be pointed out, and such explanations made as seems to be required. In none of these accounts is there any charge for my own labor or services. This, so far as the crops are concerned, would add but little to the cost; neither is there any interest charged on the value of the land. The *whole* labor on the farm is charged under the several heads at cost; the board of laborers at 33 1-3 cents per day; the labor of a pair of oxen at 96 cents per day; that of a horse at the same; seeds and all incidental expenses of cultivation under the head of cash; manure at $1 per load of about 32 cubic feet; guano, &c., at cost and charges. The crops, so far as practicable, are measured; the charges to family are for chopping wood, cultivating a kitchen garden, &c.; the manure charged to the crop to which it is applied; no part of it is carried to a succeeding one; the unsuccessful as well as successful crops are here exhibited.

COST OF CROPS AND OTHER EXPENDITURES,
From Nov. 11, 1850, to Jan. 1st, 1852—13 mos. 20 ds.

	Labor.	Board.	Cash	Total.
Cost of all the crops in	102 86	73 60	31 06	207 52
Farm expenses	7 65	6 85	252 36	266 86
Total chargeable to crops of 1851	110 51	80 45	83 42	474 38
Permanent improvements on farm	60 54	59 25	549 90	669 69
Manure for 1852	8 27	7 16		15 43
Family	10 13	7 86		17 99

CROPS FOR THE YEAR 1851.

45 bbls. apples	75 50	
Cider do.	12 00	
5 tons upland hay, at $12		87 50
7 tons meadow hay, at $5	60 00	
	35 00	95 00
140 bush. potatoes, at 60 cts.		84 00
143 " carrots, at 25 cts.		35 75
140 " turnips, at 20 cts.		28 00
31½ " corn, at $1		31 50
Beans, peas, &c.		14 50
Total value of all crops		376 25

In the preceding account I find no charge for the labor of oxen or horses; neither is there any for manure. The hay in this, as in the other accounts, is estimated, with a stock of one horse, one pair of oxen, one cow and four two year old heifers. I find purchased and charged in the above account, 5 tons 1614 lbs. hay, at $64 69, to carry them through the winter of 1851-'52; and for the same stock I purchased in the following winter of 1852-'53, 7 tons 1842 lbs. for $95 30. It appears by the above account, that the crops did not cover the cost of cultivation and expenses, exclusive of manure and team labor, by the sum of $98 13.

There are two reasons which induce me to ask that the accounts for the year 1857, may here be inserted; the one is, that the crops of that year were more satisfactory than those of this; the other is, that the account of that year is fully made up, which cannot be the case with that of the present, as they run from April to April, and all the crops are not yet harvested.

COST OF CROPS AND OTHER EXPENDITURES,

For the year ending April 1st, 1858.

	Crop.	Labor.	Board.	Team.	Cash.	Manure	Total.
1	Wheat,	15 27	7 05	4 36	22 81	6 51	$56 00
2	Hay,	25 76	15 33	3 12			44 21
3	Early D. H. cabbages,	6 76	3 59	1 44	1 00	17 80	30 59
4	Cabbages on Baldwin orchard,	15 05	8 95	7 72	3 75	37 91	73 38
5	" " North field,	13 59	7 46	6 48	2 49	49 73	79 75
6	Potatoes about trees,	11 59	6 57	84		7 22	25 22
7	" on Baldwin orchard,	25 42	13 50	4 80		16	43 88
8	Chinese sugar cane,	4 48	2 49	1 73	1 00	2 45	12 15
9	Potatoes on meadow,	56 26	27 42			2 44	86 12
10	Corn on North field,	10 13	6 00	2 76		20 13	39 02
11	Swedes,	12 28	6 29	3 48	1 00	14 13	37 18
12	Grass and clover, for 1858,	2 80	1 67	3 72	16 76		24 95
13	Fruit,	7 07	4 21	12	73		12 13
14	Poultry,				4 18		4 18
	Total, including harvesting,	206 46	110 53	40 57	53 72	158 48	569 76
	Crops after harvesting,	24 10	6 77		4 55		35 42
	Farm expenses,	2 42	1 59	96	71 86		76 83
	Total chargeable to crops,	232 98	118 89	41 53	130 13	158 48	682 01
	Permanent improvements,	53 75	42 04	77 64	91 62	14 79	279 84
	Family,	16 21	16 67	10 92		16 33	60 13
	Manure for 1858,	4 42	5 91	6 72			17 05
		307 36	183 51	136 81	221 75	189 60	$1039 03

CROPS FOR THE YEAR 1857.

1	Wheat 33 3-4 bushels, ...	$66 50		One piece bad, too wet when ploughed.
	4 tons straw, ...	24 00		
			90 50	
2	Hay, 14 tons English, ...	210 00		
	5 tons meadow, ...	30 00		
			240 00	
3	Cabbages 2729, a 6c		163 74	Very large, all headed.
4	on Bald orchard, 4426 a 5c .		221 30	Nearly all headed; land full small roots.
5	Cabbages on N field			A total failure, all stump footed.
6	Potatoes about trees 45¼ bu. large a 80	36 20		Planted to benefit trees
	10 1-2 bush small, a 40c .	4 20		
			40 40	
7	Potatoes on B orchard, 114 bu large 80	91 20		Land full of roots, no manure, crop good.
	11 bush small, 40 . .	4 40		
			95 60	
8	Chinese Sugar Cane, ...			Crop very large, not used.
9	Potatoes on meadow, 233 1-4 bu large	186 60		Sod very tough, crop fair, rather too wet.
	50 1-2 small, ...	20 20		
			206 80	
10	Corn on N field, 38 1-2 bush a $1.00	38 50		About ½ a crop, succeeded cabbages which are very injurious.
	1 1-2 bush beans, . ,	3 00		
			41 50	
11	Swedes 103 bush a 25		25 75	Crop poor, hollow and rotten, too wet.
12	Fruit, 33 bbls apples, ...	92 50		Very small crop.
	cider "	20 70		
	Currants sold, ...	16 00		
	" used	4 48		
			133 68	
13	Poultry and eggs sold, ...	28 30		
	" " " used, ...	20 80		
			49 10	
	Milk sold, ...	47 12		
	" and butter used, ...	45 77		
	Calves, ...	15 00		
			107 89	
	Manure as charged, ...	189 60		
	" cost, ...	108 13		
			81 47	
			1497 73	

All the omissions I find in the above accounts are the charges of seed on crops numbered 6, 7, 9 and 10; the small amounts for manure charged to second crops, were experiments with guano, &c.

By this account it appears that the crops exceeded the cost of cultivation and expenses by the sum $815.72.

COST OF CROPS AND OTHER EXPENDITURES,
From April 1st, 1858, to October 1st, 1858.

		Labor.	Board.	Team.	Cash.	Manure	Est.	Total.
1	Wheat, ...	18 45	10 17	7 37	24 00			$59 99
2	Hay, ...	23 32	16 17	5 88				45 37
3	Potatoes on Pear Orchard.	2 90	2 42	60			3 00	8 92
4	" cab'gs, baldwin.	19 42	14 03	7 93	1 88	52 00	3 00	98 26
5	Beans about trees. ..	9 17	6 25	84	1 50			17 76
6	Squashes " . .	4 73	3 50	48	2 00	10 00		20 51
7	Tomatoes " . .	1 82	1 42	48		6 00		9 72
8	Potatoes on Meadow, .	27 52	16 04		7 00		15 00	65 56
9	Grass and clover for 1859,	2 95	2 50	4 45	11 08			20 98
10	Potatoes & cab'gs on past.	24 45	15 70	11 05	6 65	55 00	9 00	121 85
11	Fruit, . . .	3 20	2 67	60			5 00	11 47
	Total, including harvesting	137 93	90 67	39 68	54 11	123 00	35 00	$480 39
	exp. after harvest on crops.						35 00	35 00
	Farm expense, . .	1 83	2 88	1 80	42 18		30 00	78 69
	Total chargeable to crops.	139 76	93 55	41 48	96 29	123 00	100 00	$594 08
	Permanent Improvements.	11 20	9 32	8 04	56 94			$85 50
	Family, ...	4 89	4 83	12	88	1 00		11 72
	Manure for 1859, . .	3 25	2 72	48	5 90			12 35
	Crops of 1857, . .	17 36	1 83		6 98			26 17
		176 46	112 25	50 12	166 99	124 00	100 00	$729 82

CROPS FOR THE YEAR 1858.

1	Wheat 76 bush. a $2.00 . .		152 00		
	6½ tons straw a 6.00 . .		39 00	191 00	
2	Hay, 18½ tons upland a 14.00 .		259 00		Computed at 525 feet per ton.
	5 tons meadow, 6.00 . .		30 00	289 00	
3	Potatoes on pear orchard, 10 bu large	60	6 00		
	3 bu small	40	1 20	7 20	Rotted badly.
4	Potatoes and Cabbages, B orchard,				Land never ploughed before.
	40 bu large	60	24 00		Cabbages two thirds bad.
	10 bu small . . .	40	4 00		
	1000 heads	5	50 00	78 00	
5	Beans about trees, 9 bu .	2 00		18 00	Planted to benefit trees.
6	Squashes, 2½ tons . .	20 00		50 00	
7	Tomatoes, 36 bu . .	80		28 80	Crop rather late.
8	Potatoes on meadow, 125 bu large	60	75 00		Should have been seeded with oats.
	40 bu small . ..	40	16 00	91 00	
					Crop small, many rotten
9	Potatoes & Cab'ges past., 110 bu large	60	66 00		Potatoes good, cabbages bad.
	5 bu small	40	2 00		
	1500 heads . . .	5	75 00	143 00	
10	Fruit, 78 bbls apples		112 00		Rather below medium.
	Cider apples		18 00		
	20 bu peaches . .	2 00	40 00		First crop.
	Currants		26 30	196 30	
11	Poultry and Eggs, ...			49 10	Same as last year.
	Milk and Butter, ...			92 89	" "
	Calves, ...			15 00	
	Manure as charged in account, .		124 00		
	Manure at cost of composting, .		17 05	106 95	
				1356 24	

In relation to the hay crop of this and the year next preceding, it will be observed that in 1857 there were in pasture but 4 1-2 acres. On this I put a pair of oxen and 3 cows. When the grass became short, they were soiled with clover from the mowing land, which decreased the crop to some extent, how much I am unable to form an opinion. The present year 2 1-2 acres of this pasture was ploughed and planted, consequently the balance, 2 acres, is unimproved, and 3 cows and a horse have been soiled the whole season, from the mowing land.

The stock on the farm this year and the last, consisted of 2 horses, a pair of oxen, 3 cows and a heifer. They consumed no meadow hay the past winter, but were entirely supported on the upland hay and clover. It is my intention to work the farm in the future with horses, to dispose of my oxen this fall, and in their stead place 3 cows, and add 2 or 3 heifers to my present stock.

The farm stands at the present time as follows, viz :—

16¾	acres	in upland, mowing and orchards.	
4	"	" meadow	"
6½	"	" wheat, seeded down with grass and clover.	
9¾	"	" tillage.	
3	"	" unimproved pasture (1 acre ploughed).	
15	"	" wood.	
55	acres.		

NORTH ANDOVER, October 1858.

UNDERDRAINING LAND.

Notwithstanding the very great benefit to be derived from a judicious system of underdraining our wet, and necessarily cold lands, and the very liberal encouragement the society has offered for several years past, for experiments in this substantial operation, still very little has yet been accomplished in the county

of Essex, in this branch of husbandry. We have the satisfaction, however, to report, that this subject is receiving increasing attention, that a very considerable number of our substantial farmers are taking the incipient steps in this direction, and we confidently predict, that the next five years will witness results from this method of improving our hill tops, as well as our valleys, which at the present time we should hardly anticipate.

Two applications have been made for the premiums offered by the society for experiments in underdraining, the present year. The claimants are James Stevens of North Andover, and E. G. Kelley of Newburyport. Both pieces of land have been examined by two members of the committee. The piece of land offered by Mr. Stevens, containing about two acres, was formerly (as will be seen by his statement herewith submitted,) unproductive and nearly valueless. The land is nearly level, the inclination being so slight that the water must necessarily escape at a very slow rate, even through a perfect water course. We should not therefore, under such circumstances, expect to find the result of the experiment so marked, as we should look for on a greater declivity. Still the committee feel that in awarding premiums offered by the society, for experiments of this nature, they should be fully satisfied that the object aimed at, had been fairly reached, and in no way can this be so fully demonstrated as by an exhibition of the crops actually produced upon the land for which a premium is claimed. That Mr. Stevens has greatly improved the land by the series of drains he has laid through the same, is evident from the fact that this is the first year he has been able to work it at all. We however consider the experiment incomplete. The crop of barley raised upon the ground the present year, was unsatisfactory, and the grass, on land so richly manured, did not look so promising as we could wish to see it. We are far, however, from pronouncing the enterprise to be a failure. Our greatest fear is, that drains lying so nearly level, will easily become obstructed, and thus disappoint expectations. We shall be happy to learn that our fears are groundless. We only regret that Mr. Stevens had not postponed his application till another year. Should his anticipations be then realized, he would present a strong claim for a premium. With the views as above expressed, your committee do not feel justified in awarding a pre-

mium to Mr. Stevens, for his experiment in underdraining. Mr. Stevens' mode of putting down his drains, (as very fully shown in his statement) is we think judicious, and probably the best method he could adopt for land thus situated.

The land offered by Dr. Kelley, containing about five acres, lies on the westerly side of High street, in Newburyport. We might say much of the beautiful evergreens and shrubbery with which these grounds are ornamented, but as we are not a committee on landscape gardening, we will return to the ditch.

The land which the doctor has underdrained, is admirably situated for the operation. The largest portion of it lies upon a sharp declivity, and the inclination is so great on any part of the land, that the water passes through the drains with considerable velocity.

The work we think is well done, and with the almost certainty that drains thus situated, will not become obstructed, we may add, permanently done. For the method adopted and materials used in this operation by the doctor, as well as for several valuable suggestions in regard to the utility of the enterprise, we refer our readers to his full, and somewhat elaborate statement which accompanies this report. The committee passed over the entire grounds through which the drains had been laid, and found the surface uniformly dry and friable, and in a good condition for the cultivation of almost any crops we usually raise. The crops remaining upon the ground, (the largest portion having been previously harvested) looked well.

We noticed a very fine lot of carrots and a patch of corn which was very good. This corn grew near the base of the hill, on a comparatively flat piece of land, where corn was never seen before. Our attention however was more particularly directed to a very fine pear orchard, occupying as we should judge, some one and a quarter acres of this underdrained land, and here we think the doctor will witness the most gratifying results, and reap the greatest benefit. If our memory is correct, there are now standing on this lot about four hundred pear trees, comprising most of the choice varieties; and we can truly say, we never saw finer trees, or a more healthy and vigorous growth. Certain we are that such trees could never have been produced upon this land in its original condition, for nothing can be more fatal to the growth of the pear tree, than stag-

nant water about its roots. We confidently predict that in five years from the present time, this pear orchard alone will pay the doctor a good interest upon his entire outlay for underdraining.

Your committee feel so well satisfied with the results already attained by the underground operations of Dr. Kelley, they most cheerfully award to him the highest premium offered by the society (twenty dollars).

Some of the most valuable farms in the county of Essex, are situated on the summits and declivities of the hills in West Newbury, Andover, Haverhill, Georgetown and Topsfield. These farms are generally wet, backward lands, and cannot be worked in early spring, subjecting the owner to the necessity of cultivating mainly the various grasses. Now as man cannot live on grass alone, we would suggest to the proprietors of such farms, to try the experiment of underdraining one acre at least, that they may have the satisfaction of regaling themselves as early as the fourth of July, with peas, potatoes and other vegetables raised in their own garden.

W. N. CLEAVELAND, } Committee on
JESSE SMITH, } Underdraining.

E. G. KELLEY'S STATEMENT.

I offer for premium about five acres of land underdrained during the last five years, a portion each year. The drains commence on a declivity, and are made for some distance with brush wood, then with stone, till the land approaches nearer to a level, when tile were used exclusively. About one-half acre each, was drained with brush and stones, and both have worked well; but we do not advise the use of either when suitable tile can be conveniently obtained, particularly if the expense of labor, difficulty of adjusting materials, and confidence in their future successful operation are duly considered.

The drainage of the lot has not only proved entirely satisfac-

tory, but each successive year the first drained land has given marked evidence of the utility of underdraining as an annual improver of the soil, in addition to its immediate benefits which the committee will readily understand by a moment's reflection upon the comparative effects of freezing and thawing clay subsoils underdrained and undrained. In the former, the expansion by freezing leaves both soil and subsoil in a lighter and more pliable condition after thawing; while the latter, both become more tenacious, like mortar, more or less so to the depth frozen; the frost however, we have observed is not so deep in the drained as in the undrained.

In view of this yearly increasing benefit to underdrained land, by these natural processes, we have many doubts of the expediency of subsoil-ploughing clayey land, after draining, so often recommended, a matter to which we have given some attention. One acre of the above has been trenched two and a half feet deep—the drains running one foot deeper—three-fourths of which acre was the only part of the five which had not a clay subsoil.

It is gratifying to be able to cultivate this drained land almost as soon as the frost is out, rather than to wait as formerly till a dry spell would, by degrees, evaporate the surface water, leaving a hard crust on a cold under-soil, previously to which it was difficult getting about on the field. The improvement in this respect is very evident compared with a lot drained by open ditches, for want of sufficient outlet; but the contrast is still greater by the side of an acre more elevated and hitherto the dryest, and supposed not to need draining at all, but now so wet comparatively, as to require to be underdrained forthwith.

We have made in the lot entered, 8910 feet of underdrains, on an average more than three feet deep and twenty-five feet apart, at an estimated expense of nearly 75 cents per rod. The brush used was the trimmings of an old orchard on the premises, which were crowded into the open ditches and forced down to a foot in depth and covered with boards, salt hay, or sods, before filling in. The stone drain consisted of small stones collected by trenching and cultivation elsewhere, and thrown in generally to the height of 18 inches and covered uniformly with very coarse gravel, abundance of which was at hand. On the

joints of the tile, pine shavings were freely used, and old shingles over many of these; but if tile are made to fit well to each other, we are satisfied that nothing whatever should be placed over the joints or next to the tile but the clay itself, taken from the bottom of the ditch. The imperfect tile, as yet in the market, greatly disappoint those engaged in underdraining. We obtained the most perfect we have ever seen from Albany, N. Y., made with double sole—a sole on opposite sides—admitting of four different positions in laying, one of which would generally fit the tile previously laid.

Of the improved productions noted from year to year, our statements might seem incredible to those who have not seen the crops, we therefore forbear.

The indirect fertilizing results of through drainage is apparently of more service to crops than common manuring on wet undrained land; but when fertilizers are applied in addition to those absorbed from the atmosphere, rains, &c., by the well drained and porous soil, the effect is truly gratifying.

NEWBURYPORT, Sept. 27th, 1858.

JAMES STEVENS' STATEMENT.

Five years ago I commenced cutting a drain on a cold, wet and flat piece of land, which had for many years been planted occasionally, and then sown down to grass. Sometimes we would get a few fair crops, and then a kind of sour, round grass would come in and the crop would be very small and of a very poor quality.

The first ditch was cut three feet wide at the top, and two feet wide at the bottom. It is 2½ feet deep and 30 rods long, and it is designated by the letter A on the plan annexed. In order to carry the water from this ditch, I cut the drain designated by the letter B, which is forty-five rods long. This drain had to be cut through a small elevation of land at O, and then came to the low land at the corner of the brick house garden, marked

X. The drain continued through the low land to an outlet. The drains are stoned, by placing stones on the sides of the ditch and then covering them with as suitable stones as we could find from the loads drawn there. On the covers we threw small stones, and after having strewed meadow hay over these stones, to prevent the dirt from going through the crevices, we threw in as much of the original soil as we could.

The next year the drain designated by the letter C was cut, and stoned as above. These ditches have taken the water from the land, so that I have been able to cultivate the land to much better advantage than before, and consequently have obtained large crops of hay of the *very best* quality.

I now come to the land below the brick house, which for many years past has been so covered with water as to render it almost impossible to cultivate it. The crop consisted of wild grass and brakes, which of course were of small value.

Three years ago I ploughed the land in August, in a very dry season, but the two following seasons it was not dry enough to plant any kind of seed. Last year I commenced cutting ditches through it, and fortunately there is fall enough to enable the drains to carry off the water. These ditches are dug two and a half feet deep, through the soil and subsoil, and about eight inches into a hard pan or clayey substance, through which the water could not penetrate, and consequently has stood upon the surface of the ground, hitherto baffling all my attempts at cultivation.

Ditches 1, 2, 3, 4 empty into the receiving ditch which has an outlet at both ends. This year I have been able to work it, and have laid it down to grass. The crop of barley which I cut from the land this season, was not large, as it was sown late, but the clover and grass look remarkably well. The stones were all picked off, and the land rolled very smooth, and I feel confident that from this field, which, for many years back, has been of little or no advantage to me, I shall obtain crops of hay equal both in quantity and quality to those taken from the best piece of land of similar size on my farm.*

---

*This piece of land contains about two acres; I have spread about eight cords of stable manure upon the surface, and ploughed it in before sowing.

In reference to the expense, I will say the ditches are stoned and covered in the same manner as those before mentioned, with the exception of the receiving ditch, which I shall cover at some future time. The ditching was done by my men, who work on the farm, whenever they could get time, therefore I am unable to give the exact cost. My opinion is that the expense is about one dollar per rod, the way I managed. I send a diagram annexed, which will give some idea of the land and labor.

NORTH ANDOVER, September 28th, 1858.

IMPROVING WET MEADOW LANDS.

The Committee on Improving Wet Meadow and Swamp Lands, consisting of R. A. Merriam, Joseph How, Calvin Rogers, John Porter and Aaron Dodge, make the following report:—

One entry only was made, and that by William Osborn of Lynn. On the 6th of July the Committee visited Mr. Osborn and viewed the premises, and were unanimous, (with the exception of Mr. Rogers, who failed to get seasonable notice of the meeting), in their opinion that Mr. Osborn was entitled to the society's first premium of $15.

We find Mr. Osborn, in his immediate neighborhood, to be designated by the honorable title of "Farmer Osborn," a most appropriate distinction, for after making several farms and disposing of them to others, he had located himself on another tract, which he is putting into quite a new and improved shape.

The portion shown to the committee, consisting of about three acres, had a most luxuriant crop standing on the ground, of grass, potatoes and carrots. It was the fifth cultivated crop taken from the land. Mr. Osborn obtained the society's second premium, for two acres of the same land two years ago.

As the hay from the land was not weighed, he seems quite modest in his estimate of two tons. The committee thought there would not be less than 2 1-2 tons to the acre.

In the same enclosure there were two or three acres of rye, on higher ground, which was over six feet in height, and a part of it well filled with grain, and another part was blighted.

An important fact upon this subject is worthy of note, viz: The part which was sown in August was well filled with grain, and the part which was sown in October was blighted; so much so that we are informed it was not threshed; although the straw was equally good as that on the other part, and alone sold for $27 per acre.

Mr. Osborn had used about four cords of composted manure, consisting of meadow mud, night soil and stable manure, to the acre per annum. He has done most of the ploughing with one horse, using ox labor only for a few days, in the breaking up of his land.

In his statement referred to, made in 1855, he speaks of blind drains. These were made of the material which he found on the ground; the cobble stones which were not large enough for fence, but which were required to be got rid of; and they answer a good purpose for drains. Another evidence of the judicious disposition of material found on the ground, is the converting the stinted growth of cedar and shrubbery into stuff for fencing the grounds; making not a very handsome fence, but which is sufficient to keep out cattle running against it. It is a fence easily made, by resting one end of the stick on the ground and elevating the other fifteen or twenty degrees, two stakes placed across at a proper distance from the butt and another stick laid on, and so followed to the end of the line, known, says Mr. Osborn, by the name of "Bull fence;" and we think it might be sufficient to deter even bulls from meddling with it. The brush he tells us was trimmed into faggots for the bakers. Thus all the rubbish found on the ground was made useful and displayed the economical and judicious management of Mr. Osborn. He has an appendage to his farm which ought to belong to all farms, viz: a work shop, where he can mend a broken tool, put a shaft to his carriage, or even make an alteration in his stables or piggery. He not

only oversees his business, but is constantly in the midst of it. The adage says—

> "He that by the plough would thrive,
> Himself must either hold or drive."

But he does both, and thereby reaps a proportionate gain. For the state of the land when it was commenced upon, reference may be had to Mr. Osborn's statement in the Transactions of 1855.

R. A. MERRIAM, for the Committee.

WILLIAM OSBORN'S STATEMENT.

The meadow I offer for a premium is the same as offered in 1855, with the addition of about one acre since reclaimed. For the expense of reclaiming, I refer you to the report of 1855. Of the expense of labor, and the crops since that date I am not able to make a satisfactory report, as it is so connected with the land on which you saw the rye; I can only say that the crops were abundant, and the most profitable investment that I have ever made in farming. The crops of this season were nine one horse wagon loads of hay of the first and second crops; 90 bushels carrots from 35 rods. Of the potatoes I cannot give you the amount as they were dug while I was from home, and I neglected to have the account kept of them; aside from the rot, there was a fair yield. I do not hesitate to say that on the most part of that in grass there were over two tons to the acre, and if I ever saw three tons to the acre it was there. It was with the greatest difficulty that we could make it on the land.

My method of raising carrots is to spread the manure on the land early in the season, and plough; let it lay until the weeds start, then plough again, and sow the carrots with cabbage seed to mark the rows as soon as they are up, go through with the scuffle hoe, and weed shortly after. It is but little trouble to keep the weeds under till the carrots cover the ground, provided you bestow the labor at the right time. I consider them one of the best paying crops that I raise.

I find 75 1-2 days' labor charged to the orchard, as I designate the whole land embracing the swamp land of about three acres, and about the same of the higher land on which you saw the rye. The land on which I had rye is about one-half sown with wheat, grass seed and turnip, and the remainder in clover of fine growth. I consider the improved condition of the land equivalent to the cost of manure, of which in my estimation I have made no account.

Lynn, Oct. 1858.

ROOT CROPS.

The Committee on Root Crops having examined the several statements, recommend that the following premiums be awarded :—

The premium on sugar beets, to R. A. Smith, Newburyport,	$10 00
The premium on ruta bagas, to Abram Low, Essex,	10 00
The premium on cabbages to S. A. Merrill, Salem,	10 00
" " " squashes, " " "	10 00

Several instances came to the knowledge of the Committee of enterprising farmers who had designed entering their crops for premium, but were prevented by negligence in complying with the rule of the Society, that the written statement shall be in the hands of the Secretary on or before the 15th of November. Some limitation of this kind must commend itself to the good sense of all, for it is clear that the members of the Committee must have a special time appointed when they shall meet to examine the statements and recommend the various premiums; any application which is not sent in previous to the time of their assembling cannot be acted on without causing an addition of labor and expense on the part of the Committee, as well as

an extra meeting of the Trustees to act upon their report, which we presume no reasonably modest man would ask, or even desire.

From conversation with many of our most successful farmers and upon mature reflection, your committee are persuaded that there is a fundamental error in the principle on which premiums in this department are awarded. In accordance with the present arrangement premiums are secured through an application written by the competitor, certain points in which are certified to by other parties, of whose character for veracity the committee know nothing, but respecting the exact weight of whose testimony, as is sometimes the case, there is an unpleasant doubt when the statement and signature of the witnesses thereto, are evidently the writing of the same hand. Would it not be well to so modify the present arrangement, that every person who intends to apply for a premium for any crop shall be required to make known to the secretary his intention when that crop is near maturity, and before any portion of it has been removed, the secretary thereupon to inform the member of the committee residing nearest to the applicant of the fact, that he may examine the crop previously to its removal from the position in which it grew.

The feeling on this point among many of our best farmers, is well illustrated by the question sometimes asked, "Is the premium awarded for the crop or the statement?" The additional check afforded by such an arrangement—to which no honest man will object—would, we firmly believe, bring many eminent competitors into the field and infuse new life into this department. In accordance with the spirit of this proposition, one of the committee was invited by Allen Rowe of Swampscott, to inspect his crop of onions before they had been pulled; the ground was visited, and the yield upon it was evidently between seven and eight hundred bushels to the acre. The committee regret that Mr. Rowe's engagements prevented him from carrying into effect his purpose of applying for the society's premium.

The greatest crops of onions raised in Marblehead during the past season were from Danvers seed. The advantages of this seed over that from coarser varieties usually raised on the

seaboard, are very decided: the onions are more reliable as a crop, are of a finer structure, are earlier, give fewer scullions and have less waste when cooked. In the coarser variety when cooked the outer layers, comprising not far from one half of the onion, are in many families rejected as worthless, and thus the question, whether the seed of the Danvers onion or that of the coarser varieties should be planted, becomes quite important in the economy of the country at large.

In the statement made by Mr. Merrill of the expenses of marketing his crop of mammoth cabbages, he has estimated the cost at two cents a head, the head averaging over thirty-five pounds. At this rate the expense of teaming them to Boston would be somewhat less than six cents a hundred pounds. In this estimate of the expense of marketing, he has obviously considered but the cash expense of his team and the value of his time. Should the cost per hundred weight be estimated at the lowest rate possible to have such work done, it would be at least double, thus quite materially affecting the profits. We are aware that with many of our farmers the value of the time of their teams, the wear of their teams and the wear of their vehicles are not considered in casting up expenses; but we cannot take this view of the matter. For a certainty, extra teaming is extra wear for both horses and vehicles, and extra wear is extra cost; then why should it not be entered accordingly? That our intelligent, enterprising farmers who turn the leaves of agricultural reports for information may have fully at command the means for estimating the income from the various crops there presented, it is necessary that the distance to which the products are marketed should be duly stated. Should any reader differ from us in the above position, let him but ask himself the question if he would be as ready at the same price to harness up and team a load of cabbages to Baltimore as to Boston, and, if not, then *why not?*

JOHN STONE, Jr., for the Committee.

ROBERT A. SMITH'S STATEMENT.

I herewith submit a statement of a crop of sugar beets raised on one-half acre of land. The land on which they were raised is a clay loam and has been in cultivation five years, and manured at the rate of about five cords per acre, yearly. Last year it was planted with corn and yielded about fifty bushels per acre. After the corn was taken off, a part of the piece was manured with coarse horse manure at the rate of eight cords per acre, the remaining part with manure from the barn cellar in which hogs had been kept; it was composed of about equal parts of horse and cow manure and sand, and applied at the rate of seven cords per acre, the whole spread on and ploughed in. In December fine gravel was put on at the rate of two hundred loads per acre. On the 21st of May it was harrowed and the rows marked off two feet apart; the seed was put in by hand nine inches apart, which I think is much better than sowing with a machine, as it saves thinning out and enables me to do most of the weeding with the hoe. The crop was taken off last week and yielded four hundred and sixty bushels and weighed 22,585 lbs. The part of the bed that was manured from the barn cellar, yielded about one-third more than the part where the horse manure was applied.

Newburyport, Nov. 13th, 1858.

AARON LOW'S STATEMENT.

I enter for the society's premium one-half acre of ruta baga turnips. The land on which these were raised is a sandy loam and has been cultivated two years. In 1856 it was planted in corn, and was manured with one shovelful of barn manure to each hill, and produced a fair crop. In 1857 it was planted in squashes and corn, and was manured with two shovelfuls of manure to each hill of the squashes and one to each hill of the corn, and produced a very good crop. In the latter part of last May I hauled on three cords of barn manure, and spread and ploughed it in. On the 1st of June I harrowed and fur-

rowed it. The turnips were sowed on the 7th of June in rows three feet apart, first having a small portion of guano scattered in the rows and covered an inch deep; as they did not come up well I re-sowed them on the 30th day of June. From the second sowing the seed came up on most of the piece very well, although in some of the rows they were not quite thick enough. They were hoed twice, and the last time they were thinned out, standing from eight to ten inches apart in the rows.

The crop was taken off this week, and yielded 335 bushels of very smooth and handsome turnips. The following is the cost of raising the crop, which is a fraction over 8 cents a bushel:—

To 3 cords manure at $4.00 per cord, half expended,	$6 00
Ploughing, harrowing and furrowing,	3 00
To 165 lbs. guano,	4 95
Planting,	3 00
To 1 1-2 lbs. seed,	1 15
To hoeing twice,	5 00
To gathering,	5 00
	$28 10

ESSEX, Nov. 11th, 1858.

SAMUEL A. MERRILL'S STATEMENT.

The method adopted by me in preparing the soil, and managing a piece of cabbages containing one acre, with the number and weight of heads raised on the same, is as follows:—

I took a piece of mowing, (which cut about one and a quarter tons of hay per acre), ploughed it in November of last fall. I then spread about three cords of green manure from barn cellar for top dressing; gave it a faithful harrowing, furrowed three feet apart and dressed with compost manure—about four cords put in hills about three feet and a half apart. I planted it about the 10th of April, thinned about the first of May, at the time of the first hoeing; cultivated and hoed three times during the season; it took about four day's work at each hoeing at $1 per day for season hands; cost of cultivating, $4; the manure used worth about $6 per cord; cost of fitting

ground and planting same about $12; cost of marketing, as near as I can judge, about $20 per thousand.

I raised on this piece 3500 cabbages suitable for the market, averaging from 35 to 40 pounds as they grew, (with leaves and stump, and free from dirt); when trimmed for the table they averaged from 25 to 30 pounds per head. I commenced marketing them the first of September, averaging from $8 to $10 per hundred; I sold some as high as $12 per hundred. It took about four ounces of the White Drumhead seed.

Salem, Oct. 20, 1858.

SAMUEL A. MERRILL'S STATEMENT.

Last spring I broke up a piece of mowing (which cut about one ton of hay per acre last season) measuring three-fourths of an acre. I spread on about four cords of green manure from barn cellar, and cross-ploughed about three inches deep. I then holed about ten feet apart each way and put in two shovelfuls of compost manure one inch deep, and then planted about the 15th of May to marrow squash, covering the seed one inch deep. As soon as the plants made their appearance I sprinkled them with ground plaster, and repeated the application of plaster until they were out of the way of the squash bug. I cultivated and hoed three times in course of the season; thinning them the third hoeing to three plants to the hill; I then applied two quarts of dry ashes to the hill to prevent the "borer." I harvested nine loads (with an ox cart) averaging 1500 pounds per load. I planted as pure marrow seed as could be obtained, and my squashes average in weight from 5 to 9 pounds. They retailed for 2 cents per pound, and by the hundred at $1.50.

The cost of ploughing, $4 per acre; manure $6 per cord; fitting and planting, $10; cost of hoeing $10, and harrowing $5; land rent of the farm about $5 per acre.

Salem, Oct. 20, 1858.

GRAIN CROPS.

The Committee on Grain crops have attended to the subject referred to them and report, that there were entered for premium four crops of rye, one crop of Indian corn, one of oats, and one of barley. In consequence of neglect in conforming to the society's rules with regard to grain crops, no premiums are awarded excepting the following :—

To Hiram Young, Newbury, rye crop, 1st premium,	$10 00
Moses Pettengill, Topsfield, Indian corn, 1st "	10 00

R. P. WATERS,
JOSEPH HOW,
JOHN M. IVES, } COMMITTEE.

HIRAM YOUNG'S STATEMENT.

I enter for premium a crop of winter rye, raised the past season on one acre and sixty rods of land. The crop measured fifty-three bushels and three pecks (53 3-4) weighing fifty-six and one-half pounds per bushel (56 1-2), and was bright and clean. A crop of potatoes was raised on the land the previous year, manured with one table spoonful of guano in each hill. The rye was sown, one and one-half bushels, immediately after the potatoes were harvested, the land having been ploughed.

Newbury, Oct. 29th, 1858.

MOSES PETTENGILL'S STATEMENT.

I enter for premium a piece of land containing one acre, from which I harvested 172 bushels of ears of corn. It was planted with corn the previous year. In 1857 it was ploughed with a Michigan side-hill plough nine inches deep. The present sea-

son it was ploughed nine inches deep with a common side-hill plough, and there has been no dead furrow for the past year. The ploughing was done with one pair of horses and a man and boy in one day, at the expense of $3.00. In regard to manure, there were five cords of barn manure spread, at $5.00 per cord. The land was then furrowed by one man and horse, about three feet and a half apart, at an expense of $4.00, and about two cords of manure from the hog yard was applied in the hill, at $5.00 per cord. In regard to seed, I used one bushel to the acre, at $1 per bushel. Dropping and covering, $1.50; cultivating with one man and a horse, both ways $1.50; hoeing, $1.00; cultivating second time, $1.50; hoeing, $1.00; cutting stalks, $1.25; bundling and getting in, $1.50; harvesting, $5.00.

Taking two bushels of ears which made of shelled corn one bushel and two quarts, weighing sixty pounds to the bushel, the acre yielded 91 3-8 bushels. The corn is of eight and twelve rows. which I have planted for the past thirty years. Ipla nted the 23d of May, and harvested the 18th of October.

The expense of cultivating the crop was as follows:—

To one man, one boy, one pair of horses,	$3 00
Carting and spreading 5 cords manure,	2 50
Furrowing, one man and horse,	1 00
Manure in the hill, 2 cords at $5 per cord,	10 00
One man and pair of oxen,	2 00
Seed,	1 00
Dropping and covering,	1 50
Cultivating, one man and horse,	1 50
Hoeing,	1 00
Cultivating second time,	1 50
Hoeing,	1 00
Cultivating stalks,	1 25
Bundling and getting into the barn,	1 50
Harvesting,	5 00
	$33 75
Five cords of manure at $5,	25 00
	$58 75

Value of Crop :—

91 3-8 bushels corn at $1,	$91 37½
30 hundred weight of stalks,	12 00
2 tons of butts,	12 00
Value of half of the manure out,	17 50
	$132 87½
	58 75
Nett profit,	$74 12½

Topsfield, Nov. 13, 1858.

ESSAYS.

The committee consisting of E. S. Williams, Ben. Perley Poore and William P. Endicott report:

That only one essay has been received for examination, and owing to circumstances beyond the control of the chairman, he has been unable to obtain the opinion of a majority of the Committee upon its merits. He would therefore recommend that the essay be placed in the hands of the Secretary, to be submitted for examination to the committee on essays who may be appointed next year.

In closing this report, the chairman would suggest the propriety of selecting in future, committees on essays from one city or town, which would enable them to confer together without inconvenience.

E. S. WILLIAMS, CHAIRMAN.

HON. MOSES NEWELL.

At a meeting of the Trustees of the Essex Agricultural Society, held at Danvers, June 23, 1858, Mr. Proctor introduced the subject of the death of Hon. Moses Newell, with the following remarks, and moved the resolve subjoined, which was unanimously adopted —:

Mr. President :—Since we last met, it has pleased an all-wise Providence to remove by death one of the most prominent of our number. The manly form and genial face of Moses Newell will be seen no more at our Board. Suddenly prostrated by acute disease, he was taken from us when in full vigor of body and mind, and when he had a reasonable expectation of many years more of active usefulness. The void thus made cannot easily be filled.

From the organization of this society, he was conspicuous in every good work connected with it. Without pretension to superior ability, he was never found wanting in any emergency. Having received the highest honor in the gift of the society, and discharged with the approbation of all, the duties incident thereto, he modestly vacated the station to give place to others. He was not the man to seek advancement for his own aggrandizement, nor to avoid it when the good of others demanded his services. Frank, open and free, he was always ready for

duty, when needed. He was a farmer devoted to his calling, and this was the height of his ambition.

Fortunate in being the son of a farmer, in one of the best farming districts of New England, he inherited his broad acres and exerted himself to set an example of good husbandry worthy of imitation. For forty years it has been my privilege to know him well and to witness his farming operations, and it gives me pleasure to say that no man has made greater improvements than Moses Newell. Early in the history of the society, the first premium for farm management was awarded him, when some of the best farms were presented in competition, and Timothy Pickering himself was chairman of the committee of examination.

His knowledge of stock was of the first order. His judgments quickly formed and almost as if by intuition, were most usually reliable and found to be the result of well digested observations. When by the munificence of the late Gorham Parsons, of Byfield, the society was presented with a first class bull of the Alderney breed—one of the first of the kind ever known in New England—no place offering so many advantages could be found for him, as the farm of our departed friend—Col. Newell—and well did his vigilance justify the selection. A few years since I was assured by him that traces of the peculiar richness of the dairy products of the Alderney stock, could still be observed in the animals that sprung from him, on that farm and in that vicinity. When the Massachusetts Society for the promotion of Agriculture, generously sent among us a specimen of the Ayrshire breed of cattle, all eyes were turned to Col. Newell to take the charge of him for the public benefit. In fact, whenever any thing was to be done to improve the stock of the county, his opinion was first to be taken and his services enlisted.

Not less was he to be relied on, in the selection of implements to be used on the farm. In the handling of the plough, his superior was not to be found. He knew how to hold and how to drive, having faithfully practiced both from a boy. So when that chief improvement in farm implements—the horse-power mower—was about to be introduced into the county, who so prompt and so fit to lead in the enterprise as Col. New-

ell? In every department of the farm, he stood, with one consent, "primus inter pares."

Mr. Proctor then moved the following resolve :—

Resolved, That in the death of Moses Newell this county and this Commonwealth have lost one of their best exemplars as a farmer, and the cause of agriculture one of its best supporters; and that we tender to his bereaved family our heartfelt sympathies under this afflictive dispensation of Providence, and that the Secretary be requested to communicate to his family a copy of this expression of our regard.

Dr. William Sutton, Treasurer, in account with Essex Agricultural Society. Cr.

1857.				1857.			
November.	To balance of former account		$2174 67	November.	By amount of Premiums, Gratuities and Mileage awarded by the Trustees		$1381 42
	To State Bounty received		600 00	1858.			
	To net proceeds of Exhibition at Newburyport		364 87	Sept.	By Colman Library, for books, &c		222 88
1858.					By Expenses as follows:		
May 3.	To amount received of new members		111 00		Exhibition in 1857	64 97	
October.	To Railroad coupons		42 00		Printing	346 40	
	To interest on loan		18 00		Secretary's Salary	100 00	
	To Bank dividends for October, 1857, and April, 1858		495 98		Freight, Postage, &c	42 50	
	To premiums unclaimed and credited to Colman Library		108 95		Treadwell Farm	82 12	
					Sundries	7 37	
							643 36
					Balance to new account,		1667 81
			$3915 47				$3915 47

FUNDS BELONGING TO THE SOCIETY.

16 shares	Warren Bank, cost	$1595 40	Cash on hand as above		$1667 81
12 "	Exchange Bank, par	800 00			
22 "	Commercial Bank, cost	1471 66			9806 12
7 "	Mercantile Bank, par	700 00	Deduct amount appropriated for Colman Library		395 46
6 "	Merchants Bank, par	300 00			
5 "	Village Bank, par	500 00	Funds on hand 1858		9410 66
3 "	Salem Bank, par	300 00	Funds in 1857	10,312 98	
15 "	Danvers Bank, cost	1471 25	Less amt. appropriated to Colman Library,	509 39	
Notes Receivable		300 00			9803 58
Essex Railroad Bonds, par		700 00	Decrease in 1858		$392 93

SALEM, December, 1858. E. E. WILLIAM SUTTON, Treasurer

The subscribers, as Auditing Committee, have examined the foregoing account, and find it correctly cast and properly vouched.

R. S. DANIELS,
CHARLES KIMBALL.

SALEM, Dec. 1, 1858.

Officers of the Society,

CHOSEN SEPTEMBER 29TH, 1858.

DANIEL ADAMS, Newbury, *President.*

ANDREW DODGE, Wenham,
DEAN ROBINSON, West Newbury,
THOMAS E. PAYSON, Rowley,
LEWIS ALLEN, South Danvers,
} *Vice Presidents.*

WILLIAM SUTTON, South Danvers, *Treasurer.*

ALLEN W. DODGE, Hamilton, *Secretary.*

HONORARY TRUSTEES.

James H. Duncan, Haverhill,
Gardner B. Perry, Groveland,
John W. Proctor, S. Danvers,
Richard S. Fay, Lynn.

TRUSTEES.

John Alley, 3d, Lynn,
Jonathan Berry, Middleton,
Rob't Brookhouse, Jr., Salem,
David Choate, Essex,
Thomas J. Clark, Salisbury,
Jere. Coleman, Newburyport,
John D. Cross, Ipswich,
Thos. P. Gentlee, Manchester,
Joshua Hale, Newburyport,
Joseph How, Methuen,
John M. Ives, Salem,
John B. Jenkins, Andover,
John Keely, Haverhill,
Samuel Little, Georgetown,
George B. Loring, Salem,
I. Osgood Loring, N. Andover,
Andrew Mansfield, Lynnfield,
Lambert Maynard, Bradford,
Royal A. Merriam, Topsfield,
Henry K. Oliver, Lawrence,
William Osborn, Lynn,
Moses Pettengill, Topsfield,
Ben. P. Poore, W. Newbury,
Charles P. Preston, Danvers,
Wm. R. Putnam, Danvers,
Paul Titcomb, Newbury,
Horace Ware, Marblehead,
Richard P. Waters, Beverly,
Enoch S. Williams, Newb'pt,
Enoch Wood, Boxford.

NEW MEMBERS—1858.

Marshall C. Adams, Danvers,
Joseph Andrews, Essex,
Sam'l P. Andrews, Salem,
Simeon Bardwell, Andover,
Eleazer P. Barrett, S. Danvers,
Allen A. Berry, Danvers,
Israel P. Boardman, Danvers,
Adam Boyd, Essex,
Amos Brown, Danvers,
Charles W. Brown, Danvers,
J. C. Butler, "
James Cary, Swampscott,
H. W. S. Cleveland, Danvers,
Aug. K. Cole, Newburyport,
H. M. Couch, Georgetown,
Josiah P. Creesy, Wenham,
J. Albert Day, Boxford,
Loring P. Demsey, Danvers,
Francis M. Dodge, Wenham,
Alfred Fellows, Danvers,
William J. Foster, Salem,
Abijah P. Fuller, N. Andover,
Thos. P. Gentlee, Manchester,
Franklin Hadley, Wenham,
Isaac Hale, Boxford,
Geo. L. Hawkes, Lynnfield,
Charles Herrick, Topsfield,
Benj. M. Hills, S. Danvers,
E. Francis Holt, Andover,
Chas. H. Hudson, Newburyp't,
Samuel C. Jones, Salem,
George W. Keene, Lynn,
Oliver Killam, Boxford,
Henry A. King, S. Danvers,
Aaron Knowlton, Essex,
David Knowlton, "
John I. Ladd, Groveland.
Mary Lambert, Rowley,
Jarvis Lamson, Hamilton,
John P. Langley, Danvers,
Edmund Legro, "
A. P. Learoyd, "
Samuel Little, Georgetown,
John Meacon, Beverly,
Daniel Morrison, Rowley,
Andrew Nichols, Danvers,
Dan'l P. Nichols, W. Newbury,
James M. Perry, Danvers,
Thos. W. Pierce, Topsfield,
Benjamin Poole, "
Ira P. Pope, Danvers,
Benj. F. Porter, "
Francis P. Putnam, Danvers,
Joel Putnam' "
Daniel Richards, "
Wyman B. Richardson, "
Joseph N. Rolf, Newbury,
John R. Rollins, Lawrence,
Joseph Ross, Ipswich,
Joseph N. Saunderson, Lynn,
Ezra Stiles, Jr., Middleton,
Charles B. Swan, Danvers,
Joshua Sylvester, "
Gilbert A. Tapley, "
Moses Tenney jr., Georgetown,
Aaron W. Warren, Danvers,
Wm. L. Weston, "
A. Alden White, S. Danvers,
Green Wildes, Newbury,
John T. Wood, Boxford,
Hiram Young, Newbury.

☞ Any citizen of the county may become a member by paying the sum of three dollars, to increase the permanent funds of the Society. No fines or assessments are ever imposed, and the members are entitled to the free use of the Library of the Society, and a copy of the Transactions each year. The Secretary will issue certificates to all who may apply to him.

LIST OF PREMIUMS, &c.

FAT CATTLE.

Joseph Kittredge, North Andover, first premium, -	$15 00
Paul D. Patch, Hamilton, second " - -	10 00
John T. Wood, Boxford, third " - -	5 00

BULLS OF FOREIGN BREED.

George B. Loring, Salem, Ayrshire, first premium, -	15 00
Abijah P. Fuller, North Andover, Durham, second pre. -	10 00
Charles W. Adams, Newbury, Devon, second pre. -	10 00
Charles G. Loring, Beverly, Jersey, first pre. - -	15 00
Richard S. Rogers, South Danvers, Jersey, second pre. -	10 00

BULLS OF NATIVE OR MIXED BREED.

Abraham Balch, Topsfield, first premium, - -	15 00
Moses Pettengill, " second " - - -	10 00
Philip L. Osborn, South Danvers, third pre. - -	5 00

MILCH COWS OF NATIVE OR MIXED BREED.

William Mack, Salem, first premium, - - -	10 00
Albert Dodge, Beverly, second " - - -	8 00
Isaac Dempsey, Danvers, third " - - - -	5 00

HERD OF MILCH COWS.

Marshall C. Adams, Danvers, first premium, - -	20 00

HEIFERS—THREE YEARS OLD.

Richard S. Fay, Lynn, first premium, - - -	7 00
William D. Northend, Salem, second pre. - - -	6 00
Richard S. Rogers, South Danvers, third pre, - -	5 00

HEIFERS—TWO YEARS OLD.

Joseph S. Cabot, Salem, first premium,	$5 00
Ezra Batchelder, Beverly, second pre.	4 00
Hazen Ayer, South Danvers, third "	3 00

YEARLING HEIFERS.

Richard S. Rogers, South Danvers, first premium,	4 00
George B. Loring, Salem, second "	3 00
Thomas E. Payson, Rowley, third "	2 00

WORKING OXEN.

James Cary, Swampscott, first premium,	10 00
Elijah Pope, Danvers, second "	8 00
Jacob Farnum, North Andover, third pre.	6 00
John B. Jenkins, Andover, fourth "	4 00

STEERS—THREE YEARS OLD.

Charles H. Bigelow, North Andover, first premium,	7 00
Joseph K. Farley, Boxford, second "	6 00

YEARLING STEERS.

Samuel Longfellow, Newbury, first premium,	4 00
George W. Adams, " second "	4 00

STALLIONS—FOUR YEARS OLD AND OVER.

Robert Farley, Jr., Ipswich, first premium,	20 00
Josiah Crosby, North Andover, second "	10 00

STALLIONS—UNDER FOUR YEARS OLD.

Albert Kimball, Bradford, first premium,	15 00
Eben S. Poore, South Danvers, second premium,	10 00

BROOD MARES.

Joseph Kittredge, North Andover, first premium,	10 00
Robert Farley, Jr., Ipswich, second "	8 00
Joshua H. Poole, South Danvers, third "	6 00

FARM AND DRAFT HORSES.

S. Bardwell, Andover, first premium,	10 00
C. H. Gould, Danvers, second "	8 00
James Cary, Swampscott, third premium,	6 00

COLTS—FOUR YEARS OLD.

Lambert Maynard, Bradford, first premium,	10 00
Charles Boynton, Georgetown, second "	5 00

COLTS—THREE YEARS OLD.

William Peters, North Andover, first premium, - -	$6 00
William A. Dane, Hamilton, second " - -	4 00

COLTS—TWO YEARS OLD.

George B. Loring, Salem, first premium, - -	5 00
Aaron Knowlton, Essex, second " - - -	3 00

YEARLING COLTS.

Albert Kimball, Bradford, first premium, - -	4 00

SWINE.

Wm. H. Foster, Beverly, boar, first premium, - -	5 00
James A. Dodge, Hamilton, boar, second " - -	3 00
Nathaniel S. Chase, Salem, breeding sow, first premium, -	5 00
Wm. H. Foster, Beverly, " " second " - -	3 00
Wm. H. Foster, " litter weaned pigs, first pre. -	6 00

SHEEP.

Richard S. Fay, Lynn, flock 10 sheep and over, first premium,	7 00
Richard S. Fay, Lynn, buck, first pre. - - -	10 00
Joseph Farnum, North Andover, buck, second pre. -	5 00

PLOUGHING—DOUBLE TEAMS AND MICHIGAN PLOUGH.

Jacob L. Farnum, North Andover, first premium, - -	10 00
Henry A. Gould and John B. Jenkins, Andover, second pre.	6 00

PLOUGHING—DOUBLE TEAMS AND COMMON PLOUGH.

Charles P. Preston, Danvers, first premium, - -	10 00
Horace Ware, Marblehead, and James Cary, Swampscott, } second premium,	9 00
J. Kittredge and Geo. Smith, North Andover, third pre. -	8 00
Hiram B. Allen, South Danvers, fourth pre. - -	7 00
Jacob Farnum, North Andover, fifth " - -	6 00
Abijah P. Fuller, North Andover, sixth " - -	5 00

PLOUGHING—SINGLE TEAMS.

Franklin Alley, Marblehead, first premium, - -	7 00
R. T. Jaques, Newbury, second " - - -	6 00
Elijah Pope, Danvers, third " - - -	5 00
Amos P. Swinnerton, Danvers, fourth pre. - -	4 00

PLOUGHING—HORSE TEAMS AND COMMON PLOUGH.

Daniel Richards, Danvers, first premium, - -	7 00
Daniel Morrison, Rowley, second " - - -	5 00
Wm. Ellis, North Andover, third " - - -	3 00

CARRIAGES.

Nichols & Thomas, West Newbury, four-wheel chaise, premium,	10 00
Amos Brown, Danvers, ox wagon, premium, - -	10 00
D. Bradbury, Wenham, covered wagon, gratuity, - -	5 00
Wm. C. Cook, Danvers, hand wagon, gratuity, - -	2 00

FARM IMPLEMENTS.

Samuel A. Merrill, Salem, experiment with horse mower, prem.	25 00
George B. Loring, Salem, " " " hay tedder, "	15 00
Horatio L. Holmes, Providence, R. I., garden weeder, gratuity,	5 00
A. B. Allen, New York, potato digger, gratuity, - -	5 00

FARMS.

Samuel Raymond, North Andover, gratuity, - -	30 00

IMPROVING WET MEADOWS.

William Osborn, Lynn, first premium, - - -	15 00

UNDER-DRAINING LAND.

E. G. Kelley, Newburyport, first premium, - -	20 00

GRAIN CROPS.

Moses Pettengill, Topsfield, Indian corn, first premium, -	10 00
Hiram Young, Newbury, rye, first prem. - -	10 00

ROOT CROPS.

R. A. Smith, Newburyport, sugar beets, premium, -	10 00
Aaron Low, Essex, ruta bagas, " - -	10 00
Samuel A. Merrill, Salem, cabbage, " - -	10 00
Samuel A. Merrill, " squash, - -	10 00

BUTTER.

Sarah Holt, Andover, first premium, - - -	12 00
S. L. Ridgway, West Newbury, second pre. - -	11 00
J. Albert Day, Boxford, third pre. - - -	10 00
Jacob P. Goodale, South Danvers, fourth pre, - -	9 00
Carrie M. Moulton, West Newbury, fifth pre. - - -	8 00
Ezra Batchelder, Topsfield, sixth pre. - - -	7 00

CHEESE.

Mrs. Paul Titcomb, Newbury, first premium, - -	10 00
Mrs. Stephen E. Noyes, West Newbury, second prem. -	8 00
Harriet D. Sawyer, West Newbury, third prem. - -	6 00
William Marshall, Essex, fourth prem. - -	4 00

Award by Committee on Poultry,	21	00
" " " " Fruit,	135	00
" " " " Vegetables,	50	00
" " " " Flowers,	50	00
" " " " Articles from Leather,	28	00
" " " " Cloth and Hosiery,	14	00
" " " " Counterpanes, Carpets and Rugs,	46	50
" " " " Fancy Articles, &c.,	76	50
" " " " Bread and Honey,	12	50

MILEAGE.

Joseph Kittredge, North Andover, 3 fat cattle,	2	88
B. Hutchinson, South Danvers, 2 "		48
R. S. Fay, Lynn, Jersey bull,		48
Thomas E. Payson, Rowley, Jersey bull,		96
Daniel Lunt, Newbury, Jersey bull,	1	28
William Marshall, Essex, " "		96
Charles Harriman, Groveland, Devon bull,	1	20
Samuel A. Merrill, Salem, Native bull,		32
Joseph N. Kent, Newbury, "	1	28
Daniel Norwood, Native bull,	1	20
Hasen Ayer, South Danvers, 2 heifers,		48
John Perkins, South Danvers, 3 "		72
John R. Wellman, Middleton, 3 "		96
George B. Loring, Salem, 3 "		96
Benjamin Scott, Rowley, 2 "	1	92
Thomas E. Payson, " 2 "	1	92
T. W. Pierce, Topsfield, 4 "	1	60
James Poor, North Andover, 1 heifer,		96
Gorham P. Sargent, Byfield, 4 heifers,	4	16
Joseph Andrews, Wenham, 1 heifer,		32
William H. Foster, Beverly, 2 "		80
Richard T. Jaques, Newbury, 1 pair steers,	2	56

Lambert Maynard, Bradford, stallion,	1 20
John B. Jenkins, Andover, mare,	80
Josiah P. Creesy, Wenham, mare,	32
James A. Dodge, Hamilton, "	48
George B. Loring, Salem, 2 mares,	64
William C. Mansfield, Topsfield, mare,	40
Ezra Batchelder, Topsfield, mare,	40
J. Pickering Putnam, North Andover, mare,	96
Adam Boyd, Essex, mare,	96
Joseph Marshall, Essex, mare,	96
Albert Kimball, Bradford, mare,	1 20
Manasseh Brown, Ipswich, mare,	80
Charles Boynton, Georgetown, mare,	80
Wm. Russell, North Andover, 2 horses for ploughing,	1 92
George W. Warner, Ipswich, 10 sheep,	6 40
Total,	$1299 14

RECAPITULATION.

FARMS, &c.

Amount awarded to	Farms,	$30 00	
" "	Improving Wet Meadows,	15 00	
" "	Under-draining Land,	20 00	
" "	Ploughing,	98 00	
" "	Farm Implements,	50 00	
" "	Carriages,	27 00	
			$240 00

FARM STOCK.

Amount awarded to	Bulls,	$97 68	
" "	Working Oxen,	28 00	
" "	Steers,	22 56	
" "	Milch Cows,	43 50	
" "	Heifers,	53 80	
" "	Fat Cattle,	33 36	
" "	Horses,	151 84	
" "	Swine,	22 00	
" "	Sheep,	28 40	
" "	Poultry,	21 00	
			$501 64

FARM PRODUCTS.

Amount awarded to	Indian Corn crop,	$10 00	
" "	Rye "	10 00	
" "	Sugar Beet "	10 00	
" "	Ruta Baga "	10 00	
" "	Cabbage "	10 00	
" "	Squash "	10 00	
" "	Vegetables,	50 00	
" "	Fruit,	135 00	
" "	Flowers,	50 00	
" "	Butter and Cheese,	85 00	
" "	Bread and Honey,	12 50	
" "	All other objects,	165 00	
			$557 50
	Total,		$1299 14

LIBRARY REGULATIONS.

The Library of the Society is kept at the Court House, in Salem. The Secretary acts as the Librarian, and will deliver books under the following regulations:-

1. Each member shall be entitled to take from the Library, two volumes, on signing a receipt for the same, and agreeing to be accountable therefor.

2. No member shall keep any book more than two weeks, after being notified by the Librarian that the same is wanted by another member.

3. All books belonging to the Library shall be returned on or before the 15th of November, in each year; that the same may be examined, and the condition of the Library reported to the Trustees.

4. Any member who shall neglect or refuse to conform to these regulations, shall forfeit the privilege of taking books from the Library.

NOTE. All who have paid the initiatory fee of three dollars towards the funds of the Society; all who have received certificates of membership by order of the Trustees, and all ordained ministers of the gospel, resident within the County, are considered as members. Editors of newspapers published in the County, are also, by vote of the Society, entitled to the privileges of the Library.

Catalogue of the Library

OF THE

ESSEX AGRICULTURAL SOCIETY.

A.

ABSTRACT of Report of Superintendent of the Census for 1852.

ADAMS (Daniel). The Medical and Agricultural Register for 1806 and 1807. Boston.

ADAMS (George). Lectures on Natural and Experimental Philosophy. The second edition with considerable corrections, and additions, by William Jones. 5 vols. London, 1799.

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AGRICULTURAL Tracts. 1 vol. Containing—

1. The Rural Socrates.
2. The Practical Norfolk Farmer.
3. Holkham, its Agriculture, &c.
4. Framingham, its Agriculture, &c.
5. The Management of Farm Yard Manure, &c.
6. Hints addressed to the Farmers of Essex.

Tracts. 1 vol. Containing—

1. Treatise on the Breeding of Swine and Curing of Bacon.
2. Treatise on Milk, &c.
3. Hints to American Husbandmen on Stock, &c.

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AMERICAN Farmer, a Journal published in Baltimore for 1822–3.

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1. The Sheep. By W. C. L. Martin.
2. The Pig. " " "
3. Cattle. " " "
4. The Horse. By W. Youatt.
5. The Poultry Yard. By Miss E. Watts.
6. Bees. By J. G. Wood.
7. Farm and Garden Produce. By Martin Doyle.
8. Rural Economy. By Martin Doyle.

BORDLEY (J. B.) Essays and Notes on Husbandry and Rural Affairs. Philadelphia, 1801.

BOSWELL (Peter). The Poultry Yard. A practical view of the best method of selecting, rearing and breeding the various species of Domestic Fowls. New York, 1841.

BOTANY, An Introduction to Physiological and Systematical. By James Edward Smith, with Notes by Jacob Bigelow. Boston, 1814.

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BOUSSINGAULT (J. B.) Rural Economy in its Relations with Chemistry, Physics and Meteorology; or Chemistry applied to Agriculture. Translated with an Introduction and Notes, by George Law. London, 1845.

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BRITISH Farmers' Magazine. 14 vols. London, 1826, '42.

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BUTLER (Frederick). The Farmer's Manual of Agriculture and Gardening. Weathersfield, 1821.

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CLATER (Francis). Every man his own Cattle Doctor; or a Practical Treatise on the Diseases of Horned Cattle, &c. Philadelphia, 1875.

COBB (J. H.) A Manual, containing information respecting the growth of the Mulberry Tree, with valuable directions for the culture of Silk. 1832.

COBBETT (John M.) Letters from France, containing Observations during a Journey from Calais to the South and through the Netherlands in 1824. London, 1825.

(William). Rural Rides in different Counties of Great Britain. London, 1830.

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COLMAN (Henry). Reports and Addresses. 1833, '40.

European Agriculture and Rural Economy. 2 vols.. 3 copies. Boston, 1851.

COLE (S. W.) The American Fruit Book. Boston, 1850.

COMBE (George). The Constitution of Man, considered in relation to External objects. Boston, 1835.

(Andrew). The Physiology of Digestion, considered with relation to the Principles of Dietetics. Boston, 1836.

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COMSTOCK (F. G.) A Practical Treatise on the Culture of Silk. Hartford, 1836.

(J. L.) Elements of Chemistry, in which the recent Discoveries in the Science are included, and its Doctrines familiarly explained. New York, 1838.

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CURWIN (J. C.) Hints on Agricultural Subjects and on the best means of improving the condition of the laboring classes. London, 1809.

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DADD (George H.) Anatomy and Physiology of the Horse and Veterinary Dictionary. Boston, 1850.

DANA (Samuel L.) A Muck Manual for Farmers. Lowell, 1843.

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D'HOMERGUE (John). The Silk Culturists' Manual. Philadelphia, 1839.

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An Epitome of same. By an American Farmer. Philadelphia, 1804.

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2. The Horse.
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2. Insect Transformations.
3. Timber Trees, Fruits, &c.
4. Machinery, Capital and Labor.

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FOR THE YEAR

1859.

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DECEMBER, 1859.

NEWBURYPORT:
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1859.

1860, May 11
Gift of
Dr. [illegible], Esq.
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ADDRESS,

BY JAMES J. H. GREGORY.

Mr. President, and Gentlemen of the Society:—

By observation in its application to Agriculture, I mean the perceiving of facts resulting from the development of vegetable life, either isolated or in their comparative relations; by experiment, an attempt to trace these facts to their conditions and causes;—to learn the relation between cause and effect. An experiment is a question put to nature. We *observe* that the growth of a plant in one location far exceeds the growth of the same plant in another location; we *experiment* to learn the conditions or causes of this difference. Experiment includes observation; there can be no experiment unless our perceptive faculties are first exercised, and the value of each experiment will depend largely on the cultivation these faculties have received. On the other hand, there may be observation entirely independent of experiment; just as there are a great many blossoms on every fruit tree which never answer one end of their creation and set fruit, while at the same time it is true that a blossom must, with the performance of its natural functions, precede every specimen of fruit on the tree.

My principal object on this occasion is to draw your attention to the importance of correct observation and thorough experiment to the farmer, with reference to the elevation of his nature and the improvement of his calling.

Observation may grow a noble growth in a field of but small

area; it matters not whether he who cherishes her gives her the range of one acre or a thousand, she has been reared to grand proportions on a square rod, while others have starved her on ten thousand acres. It was said of our observing Franklin that he would come back with more valuable information after crossing a public square, than a nobleman would bring from the tour of Europe.

Some may meet me at the outset with the exclamation of the wise man, what shall we observe?—"there is nothing new under the sun." To such my daily experience replies, that the field of observation is not yet exhausted—far, far from it; we stand as yet but on the borders of a land of great promise; we are but fingering a little of the surface ore while deep down runs the inexhaustible mine. But what if it were exhausted? what if the last page had been scanned? what if every fact connected with the structure, the functions, the instincts of plants, their relations of part to part, of instinct to instinct, of plant to plant, and of the office of each in the grand economy of nature—in fine, what each teaches of the broad intelligence and abounding love of the Creator, had come down to us a matter of record from the remotest ages, still, my friends, the observation of these facts and the experimental tests which would determine them, would be as fruitful and as necessary to the human soul of to-day as it was to him who first looked out on nature. A fact recorded is not often a fact realized, and though a fact may be realized, it cannot be vitalized. And here I would call your attention to one great difference between the facts observed in the works of man and the facts observed in the animal or vegetable kingdoms. The facts in man's work lie dead before us, those in the Creator's work for the most part come before us permeated by the mysterious principle of life, they are, I may literally say, *living* facts. In vegetable life we behold an elective principle, all-pervading, by which the development of one moment vanishes in the development of the succeeding moment. A vine modelled in wax is but the likeness of any given vine at any given moment; no current of life flows through man's work, no instincts which retorts and reagents cannot make visible, hold empire there; that magic interest which life alone can give is absent. I would call your

attention to another difference in the cultivation of art and the study of nature. The study of the products of human intelligence often improves the mind at the sacrifice of the bodily powers; it is not so with the works of nature. The conditions for a healthy development of the bodily powers are supplied by nature to her student. The free, unprisoned air bears to him her invigorating oxygen; laden with the fragrance of a thousand fields, she delights his senses, while every brook pours out a free libation, and the landscape in one panorama of beauty presents her pure, simple pleasures. Shall I omit to note the moral difference—that pure, simple, noble nature which she implants in all her true students.

I have said that the field of observation and experiment was not yet exhausted, that we stand but on the borders of a great land of promise. To every man who believes that for every effect there must be an adequate cause, this is but a self-evident proposition. To illustrate is almost superfluous. For myself I know not as yet how just to balance the manure applied to vines in kind and quality, so as to keep a proper equilibrium between the vine and its fruit, that there may be neither an excess of vine for the fruit, nor an excess of fruit for the vine. I know not how fully to correct the inequality, should the season prove a wet one and over-develop the vine, or, on the other hand a dry one with the opposite effect. I know not as yet how a squash vine or its roots should be pruned to aid in the growth or ripening of its fruit, and how far a wet season may affect any such plan, or a dry season, or the lateness of the season, though I am certain that these have a modifying effect. Squashes in the Marrow and Hubbard varieties usually begin to appear between the seventeenth and twenty-third leaves, very rarely one may be found appearing at the footstalk of the seventh, eighth or ninth leaf; such squashes ripen earlier than others of the field; how far will the seed of such squashes possess the characteristics of the parent? Will seed from the stem end, middle or calyx end exceed in yielding, or vary the form of the squashes grown from them? Will a squash yielding a very small number of seed give its like in this respect and *vice versa*. To what degree is it possible to remove by careful culture from any variety any impurities which manifest themselves? Will small, well-

ripened seed yield a smaller squash than may be obtained from large, well-ripened seed of the same variety? Will the seed from a squash of a superior flavor yield better flavored squashes than those from a squash equally mature but of an inferior quality? Will vines in hills or drills yield the more abundantly, in experiments each vine to be allowed the same area? What is the reason why the grass and, in general, the vegetable growth on some of the islands along our coast is not far from double, acre for acre, that of the same varieties on the adjoining mainland, though in each instance the soil is porphyry and greenstone and each are about equally subject to drought?

These questions have a practical bearing on high culture, even if but a negative could be proved of any of them. Every good farmer knows that they may be extended *ad infinitum*. No, the field is not exhausted.

If you go among your brother farmers or pass from agricultural community to agricultural community you will be struck with the difference in the pecuniary returns which are obtained for the same amount of labor invested. After having made a fair allowance for all local peculiarities, still a marked difference in the result will oftentimes remain unaccounted for. This difference must arise (there is no *chance* in nature) from a knowledge on the part of the more successful of some conditions to success, certain links in the chain of causes which are unknown to the other. It is often true that this knowledge has been stumbled upon, and but little is due to thorough experiment; this is like trusting to finding a dollar as we walk along the highway rather than pursuing a legitimate course which will certainly bring it. A dollar *may* be found on the highway, but meanwhile many dollars could with a certainty be earned.

There is a farmer in the vicinity of Boston who has discovered a way of raising early turnips free from vermin; even his very next neighbor has not learned the process; a simple fence separates widely different results, simply because it separates different processes of culture. This man has for years had a monopoly of the Boston market and the neighboring towns and cities for a radius of many miles. We, all of us, can readily call to mind those among our farming acquaintances who excel in some particular crop; it may be early potatoes, onions, squashes

or cabbage s; know that for every effect there is a cause, and if with you soil, value of manure and market conveniences are about the same, it will very likely pay on your land as well as on his; and while experimenting for this end who can say you may not discover a better way? The miner prospecting for silver sometimes finds gold.

There are whole communities who have a settled belief that they cannot raise crops which are successfully raised in other communities where the natural conditions are the same; oftentimes intelligent experiment only is needed to bridge the chasm. I have in mind a community in which, not many years ago, the field culture of the onion was unknown. The farmers labored under an incubus in the belief that they were not adapted to their locality. Bye-and-bye a sturdy old fellow came along, and insisted upon it that on such a soil he could and he would raise "hingyuns." The prevalent belief was brought to bear upon him; he was told that the thing was impracticable: but he was bound to try the experiment, and he succeeded. Now that small township devotes in the vicinity of seventy acres annually to the cultivation of this — the best paying cash crop put into its soil. Many of us can call to mind localities where the autumnal Marrow Squash and other varieties have had and are having a hard time of it, simply because a few more observers and experimenters of the right stamp are wanted in those localities. There was a time when the cabbage was never permitted to stray beyond the lowest tillage land; now it displays acres of its blue bloom on the highest corn land; experiment has carried it there.

The specific knowledge yet to be acquired relative to the instincts of the vegetable kingdom, and the connection which exists between the effects we daily witness and the causes which produce them, is, I have reason to believe, but little understood. For every result there *must be* an adequate cause; I would that every farmer realized this. Whether the experiments necessary to determine these causes will pay pecuniarily you must be your own judges, though to our intellectual and spiritual parts they may yield largely without a dollar going into the pocket. It is true that nature's answers to our interrogatories abound in negatives. Is this the condition of success? Is *this* the condi-

tion of success? we ask her, and she returns a dozen negatives to one affirmative, but in the hands of the intelligent cultivator negative truths can be turned to a positive advantage. If a man has not learned the road to take to a destination he desires to reach, yet he is helped towards the right road every time he ascertains that any particular road is a wrong one.

To learn how far the tillers of the soil have advanced in correct and extensive observation and thorough experiment — experiments that shall draw from mother nature all the information she is capable of giving to the questions put, we very naturally turn to our agricultural papers. These are conducted on the excellent idea of having farmers make their own papers, the business of the editor in the agricultural department being a general intelligent supervision, the supplying each number with a well-digested, comprehensive leader, the supplying from the fertility of his own knowledge or from exchanges whatever is wanting in the articles of contributors to cover the whole field of investigation, a discreet use of the veto power and of the pen among the weekly harvest, distributing generously from his own brains among the necessitous, and attending to the thousand other matters which make up the business of the faithful, laborious editor. And here let me urge on my friends not to be contented with subscribing for a single agricultural paper. If a farmer cannot really afford to subscribe for more than one — and he must be a very poor farmer indeed, who is so circumstanced — that ends the matter; but do not reason as so many appear to with whom I have conversed, that you do n't need the Ploughman or the Cultivator, because you take the Farmer; or the Farmer or Cultivator, because you take the Ploughman; or the Farmer or Ploughman, because you take the Cultivator. Such farmers will never buy shovels while they have hoes, nor purchase hoes while a rake is in the barn. Of the three papers I have named neither includes the other; is there any reason, therefore in saying that *because* you subscribe for one you do not subscribe for others? Each of these papers, as an agricultural paper, fills a sphere of its own, one being characterized as a conservative paper, another as giving stock particular attention, with a development of the social element, and the third as more general in its range. We have hitherto satisfied ourselves with

with the mistaken sophistry of placing our agricltural press in the same category with our newspapers. These are, for the most part, but duplicates of each other; but a moment's reflection will convince us that this cannot be true of our agricultural papers. Like subjects are often found in each, it is true, but mostly presented from entirely different stand points. There are farmers who subscribe for twenty or more agricultural papers. I would not advise a number beyond what can be well studied, as well as read, though I believe there are many who subscribe for one who should subscribe for half a dozen. To return to our subject. In compiling from these records of what the farmer is doing in the way of observation and experiment, I find much that is agreeable and profitable, somewhat that is to be regretted. The articles by the practical farmer excel in point, and generally evince that manliness, simplicity and truthfulness of character which belong to the calling. When a man has his heart in his subject, we generally find interesting reading, though he should choose to tell us that the particular species of insect he is describing has six legs, or the particular spider eight: a fact true of all insects and all spiders.

Among other instances of a want of thorough observation on the part of writers, or their ignorance of the recorded observations of others, is one often met with—advising the application of ashes to the roots of vines, to prevent the ascent of a little animal, who, born in the vine, has no connection with the soil until his mischievous course is run. Another is the terminal blossoms, which set no fruit, false blossoms, the belief of the writers being that they are abnormal products, when they are the staminate blossoms, and as necessary for the perfection of the fruit as are the pistilate. Another, and a very striking instance of the want of correct observation on the part of contributors to our papers, is in the treatment advised for fowls. In all the articles that have met my eye relating to the management of fowls, there is a uniform agreement in one error—in advising the feeding of lime in some mineral form, such as pulverized clam shells, oyster shells, burnt bones or chalk. The necessity for such food is commonly taken for granted, from the fact that lime enters into the composition of the shell of the egg; so does phosphate of lime enter largely into our

bones, and from the law of change, which is continually tearing down and rebuilding our framework, this phosphate is constantly needed; yet no man advocates a bone diet. Many of the molusca have ponderous shells of carbonate of lime to construct, yet it is never conjectured that they digest this in a mineral form. The milk of cows abounds in phospate of lime, and they must supply the ingredient daily; yet when the animal is healthy and her pasturage such that the grasses on which she feeds have their proper proportion of phosphoric acid, who ever knew a cow to crave the phosphate in a mineral form? The argument from analogy, therefore, fails. It is true, fowls will eat fragments of bone, clam shells, oyster shells and stone, and it is therefore inferred that the lime must be used in the formation of the shell of the egg; but the male eats this mineral matter as readily, in proportion to the amount of food consumed, as the female. Again, it is urged to give burnt bones; now the lime that enters into the composition of the shell of the egg is almost wholly carbonate of lime, but the lime in these burnt bones is almost wholly phosphate of lime. Again, in the pebbles there may not be a particle of lime, and yet they will devour these, and for the same reason that the fragments of shell are consumed, viz: to supply that wonderful internal grinding apparatus of theirs with millstones; and as nature is no bungler in all her works, she has made them good millers by implanting in them a liking for the hardest and most angular fragments. It may here be objected that they readily devour the shells of eggs; but this apparent exception is readily accounted for, from the large proportion of animal substance remaining on the shell or entering into its composition.

If the argument is pursued farther, from a chemical point of view, you will find that there exists in our grains a sufficient proportion of carbonate of lime to answer all the demands of nature in the construction of the shell of the egg. Finally, it is against all the analogy of nature to assume that an animal, with its functions in normal condition, requires any mineral as food which has not first passed through the wonderful laboratory of animal or vegetable life.

I shall be pardoned by my audience for having dwelt somewhat at length on this subject, for I think it affords a striking

instance of a want in the community of correct observation and thorough experiment. Correct observation would have brought numerous instances to light in which fowls have readily produced the daily egg to order, properly cased in pure crystaline white, without access to any lime whatever, the whole winter through; experiment would have taught that the natural appetite of the fowl is satisfied when the minerals fed to them are of convenient size, hard and angular, *let the composition of them be what it may.*

We can dwell but little longer on this division of our subject. Who of my hearers, after having carefully studied an article in our agricultural press detailing some interesting experiment, has not often found it necessary to obtain from the writer of that article more information before he could repeat the experiment or know what value to set upon the apparent results; who has not found in such articles some wide, unbridged chasm between his cause and effect or the mistaking of a sequence for a consequence? I repeat but an axiom when I say at this late day, that the farmer needs a thorough education as much as any other class in the community; and to make the full, round, thoroughly developed farmer, educated up to the full demands that the calling has for his spiritual and intellectual nature, no mechanical employment, no profession requires so thorough and extended an education. No one can make the records of observation and experiment a study without having an overpowering sense of the grandeur and extent of the unexplored world before him, and of the necessity of educated intellect to filter out the crudities with which these records abound. Truths in nature are not to be so easily learned as the public at large presume; nature is coy of her secrets in proportion to their value. Through a long, dark night of ignorance has the careful student noted facts, and the philosophic sage compared them in all their relations, and generalized with thoughtful brow, but as yet the morning has hardly broken; knowledge in agriculture appears as but a phantom, flitting in the dusky twilight and eluding our most earnest efforts to secure her in our grasp and fix her habitation.

I have read nothing more interesting in illustration of the hazard of drawing too hasty a conclusion from our experiments,

than the valuable records of the Board of Agriculture, of the experiments made under their supervision at the Farm School. If the results of these should be nothing more than the impressing of the public mind with the number of conditions which enter into a reliable experiment, they will have performed a great service. To follow, with complete success, the steps of a successful experimenter, I should want to ask him a great many questions: What is the character, composition and condition of the sub-soil? The depth of the upper soil? The mechanical condition of it? The chemical constituents of it? Its *digestible* constituents (for what are not in digestible condition are of but little moment)? What is the lay of the land? What manure was applied the two years previous, and what crops were raised upon it? What manure was applied the year of the experiment, and what was the condition of the manure? Upon what had the cattle been fed? If barn manure, how had the manure been kept? Was it fresh or partly fermented, and how was it applied? How wet was the season, and how hot was it all through the growing portion of it? These and many other questions must be answered before I can feel myself on the road to complete success; and not only must they be correctly answered, but the information obtained correctly applied to my own soil.

Before leaving the contributors to our agricultural press, there is one class of whom I would say a word: I mean that class of contributors, many of whom farm largely but are not farmers, a class who have a strong natural interest in agriculture, but whose callings in life lead their feet in a way their hearts go not. Articles from this class, from the results of superior educational advantages, and from the fact, that standing outside they may survey a larger field, are sometimes better written than those by the practical farmer, who may excel in point what he lacks in finish. Articles by this class are often characterized by an elastic enthusiasm, if not fine poetic glow which catches the very spirit of nature. On the other hand, they are sometimes characterized by a defect which will always be found in the writings of those in whom theory and practice go not hand in hand — a too hasty generalization; they need the curb of a thousand unforeseen failures which

practical experience alone can give. This class are apt to map out the hours of the farmer after the day's work is done to various intellectual pursuits. Certainly they are to a degree right; every farmer ought to devote a portion of his time to the improving of his mind, but in this hard-working Yankee land of ours, over-worked as the farmer now is during a large portion of the year, the proposition, in a general application is impracticable. The idea, which is very prevalent, that the body can be exhausted by work and yet the mind be left bright for study, is an absurdity, as every one who has tried the experiment knows. The mental powers cannot work without a supply of vital vigor any more than the body, and after the body has exhausted the vitality of the system, what is there left for the mental powers? It has been remarked of pugilists, that as a class, they are but little above idiots, almost the whole of their vitality having been absorbed in the excessive culture of their bodily powers. It is a great misfortune to any tiller of the soil to find himself usually incapacitated after the labors of the day are closed, for profitable reading or study; the wisest philanthropist for such a class is he who can teach a fellow mortal how to lessen the number of his wants, or introduce improvements in agriculture, such as improved implements, whereby equal work can be done as thoroughly and more speedily and with less wear and tear of the man than under the old system. Mowing machines, grain threshers, the steam plough, and like products of human ingenuity, march nearer the van of an improved civilization than many of us conceive of.

I cannot pass from this department of our subject without protesting against the bitter spirit which is sometimes exhibited by practical farmers against this class of agriculturists. Their interest in agriculture has been ardent and generous and by their writings, countenance and example, they have done much of late years to raise the occupation of farming from the degraded position it once held in public sentiment, until I am sometimes inclined to believe that a portion of this irritable feeling arises from a conviction that the calling is now put upon its mettle to prove itself worthy of the honors it is so freely receiving. It is true that the sums of money sunk in non-paying experiments by this class of farmers may exert a discour-

aging influence on others in the calling, but with the sensible such results will not depress enterprise but teach a wholesome lesson. Though many of their experiments have established but negatives, still such results are valuable, they serve as guide-boards to all who travel that way, pointing out the road they should *not* take. "My farmer friends," these guide-boards read, "here is a quicksand; I sank a farm just here, take care!"

One of the strongest reasons for urging a greater attention to observation and experiment in connection with agricultural pursuits is, that it is greatly needed to elevate the calling above a mere money-getting pursuit.

Travellers from foreign lands and some of the more enlightened classes in our own land have termed the farmers a close-fisted, narrow-minded set of money-getters. It is true there are those who are possessed with the want that is ever wanting, who have made money their god, and who storm and rave against those who would subject this god to the public weal; but it is not to be wondered at, however much it may be lamented, that such a class exists. Our nation is a phenomenon among nations. History informs us that nations while hand in hand with rude, untamed nature were barbarous nations; their powers were spent in the wrestle for the necessities of primitive life. The amelioration of the nations was by steps of slow progress, long ages passing as they slowly advanced from without the dark shadow of barbarism up to the amenities of a refined civilization. Now, while it is true that in our origin we have been more fortunate than most peoples, in starting from a civilized ancestry, yet it was civilization transplanted from the place of its origin, severed from the conditions of development which had gradually matured it and continued to sustain it, and thrust back into the home of barbarism. It is as though a thrifty tree were taken from your highly cultivated nursery and planted down amid the thick growth of primitive forests. Would you expect from it the noble fruit of former years? No; you would the rather be surprised to find it hold its life, and rejoice at its vigor if it but bore the tiny fruit of its wild brethren of the forest. But the tree of our ancestry was of noblest origin; it pushed its roots down deep into the soil, still continued to yield its noblest fruit, struck out its limbs boldly, dwarfing and dwin-

dling its rude brethren in its shade, until it promises finally with its fruitful branches to overspread all this goodly land. Yes! we are a nation in a day. All along a frontier of thousands of miles, and even within the sound of young cities, the woodman yet swings his axe in echoing forests, the bound of the wild deer yet rings in village streets, and the bear and the catamount yet howl along the escarpment of overhanging hills and within the same sweep of the vision rise the church and the schoolhouse, not very remote the college presents its intellectual bulwarks, while from the workshop and the forge ring the honors of intelligent, free labor.

We are doing the work of many ages in one, a work preparatory to which other nations found ages necessary for the accummulation of capital. We dig at the mine, smelt the metal, coin the dollar, invest it in the purchase of the skill, the intelligence, the refinement of others, and endeavor to incorporate these into our own mental structure, all in almost one unbroken round. Is it to be wondered at that a people with such a history, thus situated, and doing so much should be active minded in money matters, striving after the dollar as a means to obtain the numberless, excellent ends our progress has placed within our reach? Is not our desire for money a proportional desire? If it is said that other nations are not so earnest as we for the dollar, may it not in all fairness be replied, and not for anything else that calls for stirring enterprise. Is it much against us that, having to answer such numberless demands on our purse as are made by our social, domestic, intellectual and religious progress, we have a habit of clubbing a dollar with our wits, and so making two of it?

It is indeed to be lamented more than to be wondered at, that we have in the farming community a class who think more of money than of manhood. I would that the immortal words of Agassiz might ring in the ears of this class, as recorded in that pithy letter he wrote to a body who depended largely on the money motive as an inducement for him to lecture before them: "*That is no motive,*" he nobly replied, "*my time is too valuable to be spent making money!*" Think of it! A man's time too valuable to be spent making money! What blasphemy in the ears of the worshippers of the money-god! What a splendid instance

is this of the natural, nnconscious greatness of the man, how unstudied it comes out, the instinctive impulse of true greatness! It is an expression which will pass into his history. The time may come in the progress of the world when its acquirements shall have progressed beyond the knowledge of an Agassiz, and all the discoveries now so brilliant, shall have been covered by the dust of centuries. to be disturbed but by the grateful antiquarian; but the tribute to the true nobility of man included in those noble words — a truth from which noble souls will ever wipe the dust — shall continue to ring on the ear of thousands, and keep his memory green through untold ages.

To elevate such a class from their low prostration I would urge communion by observation and experiment with the soul of nature that they may learn that the man is greater than his trade or profession, and it were a shame and against nature should he become tributary to it, exchanging his nobility for gold and bartering his manhood for the cunning of the fox.

It is to the honor of the race that the public mind is so occupied in our day with plans for a more systematic and thorough education of the farmer for his calling. What is most needed is so to elevate the man that he will have a love for his calling as a calling, making the money motive secondary to the noble manliness which is the natural fruit of the pursuit. To attain so desirable an end I know of no better way than to take the little child by the hand and bring him into communion with nature, fostering a love for all the beauty that clothes the earth and sowing lessons of Divine goodness and greatness in the virgin soil of the young heart. As the child advances in years encourage and direct the activity of his powers of observation; let your greater experience open new channels, and your greater knowledge add to his store. Help the willing boy to "light his taper by the Master's lamp." From the time the child is able to go out uncontrolled, let it have its little garden to plant, and as it advances in years exact that all its dealings with you as a consumer shall be a matter of record that the income and outgo of the little farm may be ascertained, and thus the child be taught to keep accounts. Let him have his agricultural paper and teach him to analyze the experiments of others as well as to experiment himself. Should he desire a little

live stock in the shape of poultry, rabbits, or the like, if possible let him have it under proper conditions. It may be that at the close of the year the balance will be in favor of the meal barrel; but how few of our boys or young men procure so cheap pleasures, and alas! how few, from a defective education are contented with pleasures so innocent, so elevating. Let no one expect in such a school to rear one of those sharp boys that some parents rejoice in, flippant, unnatural, disgusting monstrosities. Natare is simple, innocent, truthful, and the child in full communion with her cannot be otherwise than simple, innocent and truthful.

But alas! I can no longer close my ear to the lament of those mothers who think more of making their boys and girls good clothes-horses than of giving them sound bodily vigor; who study more the adornment of their bodies than the cultivation of their souls, having ten sharp words for the soiling of some article of dress to one tame rebuke at the appearance of a moral blemish. Many a well-intentioned but narrow-minded parent is laboring unceasingly to dwarf the mind of her child down to that littleness which cannot comprehend the generous self-forgetting of true manliness. An aspiring mother has aimed to make a "man" of her boy by a shorter process than is found in nature's slow handiwork, but instead of developing after her prim model the young conglomeration of hearty, healthy impulses has all the while been unconsciously patterning after the lower orders of creation, burrowing like a woodchuck, paddling in mud holes like a duck, climbing like a monkey into every clothes-tearing tree, until rosy-cheeked, he stands before her tearful eyes somewhat rough, torn and tumbled. Mourning mother, the law of development, ordained by the creative wisdom makes the lowest reptile and the noblest man alike at one period of their growth, and that law still keeps up a unity of development in the hearty forgetfulness of young years and in the similarity between the wants of children and those of young animals.

When our present school system takes charge of the child what does it do towards the cultivation of its perceptive powers? The plan of attempting to train the reasoning powers of children so early in the proportion in which this is attempted in most

of our schools, appears to my own mind unnatural and highly objectionable. I am persuaded that the result with many young children is a loss of a healthy confidence in themselves, a confusion of the head and worriment of the mind, with but little besides. Much of the apparent progress every experienced teacher knows is but superficial, being but little more than a facility acquired in the use of a round of formulas. In early years the powers of observation are all activity, while the mind has a poetic susceptibility in harmony with the phenomena of nature. To take advantage of the ready memory of a child and withdrawing its natural stimulus which exists in the outward world to set him down to memorize rules in Latin or Greek, as some advocate, appears to be about as well judged a use of the boy's powers as the Fejeeans made of the missionaries sent to Christianize them,—they ate them. It may be replied that in after years they reap an advantage. To an extent this is true, but how many men at the intervals of business or at the close of a business career turn to their Latin for recreation, notwithstanding all the attempts to engraft and cultivate a taste for this in a period of life when the mind is susceptible and vigorous; and after settling this question, then consult your acquaintances and find how many in their hours of leisure, despite a want of all artificial culture, evince a love for nature, and lament that in early life they had not studied more in her school. I would, my friends, that there was more of taking the children of our schools out into the fields and woods under competent instructors, there teaching them to observe every development of life, to distinguish the thousand forms of animal and vegetable life, to learn their structure, history, uses and instincts, for I have seen as much eager competition in an attempt by members of a class to tell the name, structure, history and the like, of a tree upon the presentation of a single leaf, as can ever be found in the spelling down classes of our villages. Such training would develop a new world in this world which we call ours, though to the multitude it is an undiscovered land in all three kingdoms.

All nature was created with certain relations to our spiritual being, and she receives her highest vitality only when these relations are recognized and established by us. The full develop-

ment of nature includes a spiritual development, and she is in reality only so far developed as man himself is developed.—Our design with the crops we toil over may be solely for the feeding of the body, but that was not the end of the Divine plan; the phenomena of nature God also designed for the germination in human hearts of thoughts of His love and goodness. Without this great supplement they are but dead mechanical forces, and only when man practically recognizes this ultimate end of all natural phenomena, presenting devoutly the listening ear and appreciative heart do they receive vitality, speak and work in our souls, and thus the Divine plan attain a full development. A flower is not a flower in the highest sense until it has performed this work in your heart: let that field bud and blossom as the rose, yet in a high, *true* sense it is a desert to you unless it has answered the end of its creation in your heart.

This young lady may plant her flower border with rose bushes, but all the skill of the highest cultivation will be in vain; it will bear but thistles for her. For that young lady you may plant thistles, but for her they will bear nothing but roses. I want, my friends, that you should look on natural phenomena from an elevated seat, from whence it will appear in your eye as it is in God's eye! What these phenomena say to us and what they shall work in human souls, must depend on the state of that soul by whom they are recognized. When the corn is put under the sod, how far its roots shall strike into the soil and the richness of its growth will depend on the condition and quality of that soil into which those roots penetrate; so what the facts developed in the vegetable world shall do towards elevating a man depends largely on the natural quality of that man's mind, and its condition when his powers of perception were exercised.

There is a great difference among men in their intercourse with nature: one rambles abroad or goes into his fields to labor in an abstract, absent manner, a sort of walking automaton. All the faculties are turned inward; he is deaf, dumb and blind to nature, and as she always meets one half way, she is deaf, dumb and blind to him. Another goes forth with eyes, ears, and all the senses in high activity, but it is merely a sensuous activity; he rejoices in the fragrant air because it is fragrant; he enjoys the beauty of the landscape as he would beauty in art; so of

the sounds of animate life,—they are so much music which could be scaled off. To a third nature is more than this; he recognizes not results alone, but, possessed by an intuitive sympathy with the mysterious principle of life, his mind penetrates beyond the sphere of the senses, and he beholds more than a poetic beauty in the action of the wonderful instincts of the animal or vegetable world.

But the true child of nature has with her a deeper and higher communion. To him all the pleasures which come in at the senses, all the keen interest which the play of life in its ten thousand forms begets in his soul, are a revelation of a superintending greatness and all-pervading goodness. It is not many men that have this revelation made to them, neither is it to many men that the Bible is a revelation; it may be but a mass of words, a relict of antiquity, an intellectual study, how many does it put in communion with the greatness and goodness of the Creator? Yet there is a natural affinity between the works of nature and the observing powers of man. He who created nature to be a teacher of greatness and goodness, implanted in the soul a susceptibility to her teachings; and, my friends, I have urged on this occasion that these natural relations shall be recognized and maintained. I would that when you put your seed into the ground you should feel that you had committed it to the watchful care of the Creator and Sustainer; that when you look for the sunshine and the rain to nourish the mystery of life wrapped up in that little germ, you look not with a dead heart to dead laws, but to One who witholds or gives in goodness and wisdom with reference to the wants of all your being. I would, my friends, that when you gather in your ripened harvests, you should feel that you are taking it from His outstretched hand. I would have you perceive in the beauty of nature but the smile of His presence, and in her ten thousand melodious sounds the harmonious music of His love. Listen! and from the bursting petals of flowers you shall catch low, sweet chords of that heavenly strain that went out from paradise: listen! and with the simple, helpless tones of young life you shall catch the supplement of supporting and sustaining love!

REPORTS, &c.

FRUITS.

The show of Fruits of to-day was quite equal if not superior to that of any previous year; a dish of Seckel Pears surpassed any heretofore seen in the County. The Belle Lucrative, Beurre Bosc, Beurre d'Anjou and Flemish Beauty were universally admired. The greatest feature of the show, however, were Apples, from the large Gloria Mundi, to the beautiful Fameuse. We have never previously seen upon our tables such fine grown specimens of the Porter, Fall Harvey, Hubbardston Nonsuch and Gravenstein, and it was with some difficulty that your Committee could decide upon the best 12 specimens, they were all so fine. There were 815 baskets and dishes of Fruit, contributed from the following cities and towns of the County:—Salem 24, Danvers 76, South Danvers 14, Topsfield 12, Beverly 4, Boxford 3, Wenham 3, Marblehead 2, Hamilton, Middleton, Amesbury, West Newbury, Newbury, Rowley, Lawrence, Rockport and Beverly, 1 each; Haverhill 2, Georgetown 2, Newburyport 8.

We are gratified to find that the cultivation of fruit, both by farmers in their orchards and mechanics in their snug and well-tended gardens, is extending throughout the county, and that our method of offering premiums only for those varieties which are the most remunerative, has commended itself to many of our best cultivators. It is in this way that we can render good service in guiding the public in the selection of those fruits,—especially the pear, of which the varieties are so numerous—that are most worthy of cultivation. Heretofore premiums have been given for some varieties of apples and pears that were of doubtful character, or were decidedly poor

sorts for market, or such shy bearers as to make them unprofitable to the producer under the most favorable circumstances.

PEARS.

For the following sorts of 12 specimens each, they award a premium of $1 00 each:—

Bartlett, to David Pierce of South Danvers.
Belle Lucrative, to George Nichols, Jr. of Salem.
Beurre Bosc, to W. C. Barton of Salem.
Seckel, to George Nichols, Jr. of Salem.
Buffum, to George Nichols, Jr. of Salem.
Black Pear of Worcester, to W. D. Northend of Salem.
Vicar of Winkfield, to Wm. Weeks of Salem.
Winter Nellis, to W. C. Barton of Salem.
Pound, or Uvedales St. Germaine, to Geo. Nichols, Jr., Salem.
Lawrence, to W. D. Northend of Salem.
Glout Morceau, to J. A. Learoyd of Danvers.
Lewis, to J. M. Ives of Salem.
Louise Bon d' Jersey, to John V. Stevens of South Danvers.
Beurre Clairgeau, to Alfred Fellows of Danvers.
Andrews, to George Nichols, Jr. of Salem.
Golden Beurre, to Horace Ware of Marblehead.
Gansels Bergamotte, to A. D. Rogers of Salem.
Duchess d'Angouleme, to Alfred Fellows of Danvers.
Thompson, to A. D. Rogers of Salem.
Catillac, to A. Nesmith of Beverly.
Urbaniste, to George Nichols of Salem.
Bezi de la Motte, to George L. Hodgkins of Salem.
Fulton, to E. Lake of Topsfield.
Wilkinson, to J. M. Ives of Salem.
Washington, to G. L. Hodgkins of Salem.
Beurre Diel, to W. C. Barton of Salem.
Beurre Langalier, to George Nichols, Jr. of Salem.
Flemish Beauty, to Stephen Thayer of Salem.

For the largest number of the above varieties :—

First premium to George Nichols of Salem,	4 00
Second, to W. C. Barton of Salem,	3 00
Third, to William Weeks of Salem,	2 00

GRATUITIES ON PEARS.

To Josiah Newhall, Lynnfield,	2 00

John Sawyer, Boxford,	1 00
Charles Lawrence, Danvers,	1 00
Peter Waite, Danvers,	1 00
Amos Brown, Danvers,	1 00
William A. Gaffney, Danvers, (for a dish of the Endicott Pears from the original tree, now 227 years old,)	1 00
S. A. Goldthwait, Salem, collection of Pears,	2 00

APPLES.

For the best 12 specimens of the following, $1 00 each ;—

Porter, to D. A. Grosvenor of Danvers.
Pickman Pippin, W. C. Barton of Salem.
Mother, S. P. Fowler of Danvers.
Ribston Pippin, Horace Ware of Marblehead.
Hubbardston Nonsuch, T. R. Leach of Topsfield.
Hunt's Russet, Marshal C. Adams of Danvers.
Baldwin, Amos Brown of Danvers.
Danvers Winter Sweet, Richard Hood of Danvers.
Seaver's Sweet, E. Getchel of Danvers.
Haskell Sweet, B. P. Ware of Marblehead.
Gravenstein, Warren Sheldon of Danvers.
Minister, Amos Brown of Danvers,
Sweet Baldwin, Stephen Driver of Danvers.
Ladies Sweet, Stephen Driver of Danvers.
Fameuse, S. P. Fowler of Danvers.
Roxbury Russet, John Brown of Danvers.
R. I. Greening, B. J. Balch of Topsfield.
Fall Harvey, T. R. Leach of Topsfield.
Drap d'Or, W. H. Herrick of Wenham.
Lyscom, S. Driver of Salem.

For the largest number of the above varieties ;—

First premium to B. P. Ware of Marblehead,	4 00
Second, Stephen Driver, Jr. of Salem,	3 00
Third, E. Lake of Topsfield,	2 00

GRATUITIES ON APPLES.

Daniel Richards of Danvers, for a collection,	2 00

Winthrop Andrews, Peter Wait, Alonzo C. Putnam, Samuel Wait, George Whittier, Joseph Merrill, all of Danvers ; Amos Wood of Newburyport ; Dr. Mack of Salem ; Aaron Low of

Essex; P. Ordway of Newburyport; Moses Pettingell and Israel Rea of Topsfield; Josiah Newhall of Lynnfield; Sylvanus Nelson of Georgetown; John Messer of South Danvers; Nelson Bodwell of Boxford; S. B. Osborne of Salem; T. C. Thurlow of West Newbury, $1 00 each.

PEACH.

Brattles White, to Nathan Page, Jr. of Danvers,	1 00

GRAPES.

Best Isabella, to J. M. Ives of Salem,	3 00
Native County, to James Blood of Newburyport,	2 00
Seedling, to Charles Lawrence of Danvers,	1 00
Isabella, to C. P. Bosson of Salem,	1 00
Seedling Isabella, to T. H. Cutter of Newburyport,	1 00
Cold House, to William Maloon of Salem,	1 00
Green House, to R. S. Rogers of Salem,	1 00
Best Hybrid, No. 19, to Edward S. Rogers, early as the Concord, but of better quality,	2 00

We were asked at the Hall, why, in our premium list, preference was given to Pears grown upon their own root, rather than upon the Quince. We would say in reply, that the Quince root cannot be depended on for many years—that bearing earlier than upon its own root, brings it to an early termination; it rarely lasts more than ten years, but *occasionally* it flourishes and is productive for twenty years. We therefore recommend for orchard culture, and for permanent crops, the pear stock. Under favorable circumstances this tree is long-lived. The Endicott Pear Tree, still in a bearing state at North Danvers, was imported from England by Governor Endicott in 1628. The French Pear Trees, (so called,) that line the borders of the river at Detroit, are said to be nearly a century in age, and are still in a bearing state. Hence we have in our premium list given preference to those grown upon the Pear root, and we would suggest to the Trustees the propriety of confining premiums to these *alone*, giving *gratuities* simply to those grown as Dwarfs; and as we wish to encourage the growing of the Pear upon its own root rather than upon the Quince, the last belonging to the small garden of the amateur rather than to the orchardist, we would again commend these suggestions to the Trustees. It is

often asked, "why Pear Trees do not flourish equally well in every locality ?" This we would say has been attributed by some to their proximity to the ocean. But we do not apprehend this to be the cause; on the contrary, it is probably owing to the want of proper soil first, and also in applying too much animal manure not composted. Regarding the proper soil for fruit trees our practice has been for many years to *follow nature in her mode of enriching the soil;* or in other words, use vegetable manure more generally *by the application of leaves in compost with wood ashes, peat, and shell lime.*

The supposed influence of climate or locality on certain Pears, as said by Downing in his Book of Fruits, he could not sustain, and hence a few years after he gave up this theory, and said, "That a larger observation of the effect of the composition of soils convinced us that much of what we attributed to climate, was simply owing to a want of inorganic or mineral manures in the soil." Another objection we have to the use of unfermented animal manure, is that it stimulates, and as a consequence of this over-supply, induces a sort of plethora or tenderness in the tree, from a too rapid and forced growth. We prefer to see a moderate and regular growth; hence we believe that good pasture land is better fitted for fruit trees than that which has been long under the plough, because it is not exhausted of that decomposed vegetable and mineral matter which is well fitted to be the food of trees, the wood also ripening better. We have long observed that young trees, particularly the cherry, if making a great growth in the summer, was extremely apt to die out the following winter, owing undoubtedly to its succulent growth and want of ripeness in the new wood.

Pear Culture. There is no fruit cultivated that is so variable in different localities in growth and fruit as the Pear. It would seem that, with the exception of the Bartlett, (which assimilates itself to various soils,) there is scarcely one of the fine sorts that does equally well with all cultivators, some requiring a rather cool and retentive soil, others a warm sandy loam. There are also many pears with regard to which it is difficult to know what peculiar element is wanted for successful growth; for example the Dix, which cracks or blasts in many soils. On some land the fruit of the Napoleon and St. Ghislain

is astringent. The analysis of soils which has been made from time to time, has never as yet given us anything reliable on this matter, and we are inclined to think with Professor Mapes that "the Laboratory and the microscope are both incapable as yet of ascertaining why two substances, containing the same constituents in precisely the same relative proportions, should so widely differ in their functions that one will fertilize a plant, and the other will not: that one can be absorbed by organisms, both vegetable and animal, while the other cannot."* In order therefore to have good fruit from the fine varieties, more attention should be given *to ascertain, if possible, what varieties do best in our own soil*, and to cultivate for a principal crop those only. This we apprehend to be now the great desideratum in the culture of this fine fruit. Many individuals are inclined to possess a great number of varieties irrespective of the soil in which they place them, and in consequence of this we rarely, if ever, meet with an orchard of Pears that as a whole is remunerative to the owner. If a cultivator should have in his grounds the four varieties of winter Pears—The Beurre d'Aremburg, Winter Nelis, Lawrence and Lewis, and he should find that any of these had done well for a series of years, those only should be multiplied, and the same course should be pursued with the summer and fall varieties.

Grapes. As to the oft-repeated question—"What are the best varieties of Grapes for out-door culture, and whether there are any among the numerous varieties now offered for sale superior for general cultivation, and that will ripen in this county earlier than the Isabella, Diana or Concord," this is a question difficult to answer, unless we now have them in the new hybrids, exhibited at our last show by E. S. Rogers of Salem, among which were at least two varieties, superior in many respects to those we have heretofore grown in open air. These new grapes have for their parent on one side, one of the largest, earliest, and hardiest of our native grapes—the Mammoth; on the other, two of the best foreign sorts,—the Black Hamburgh and White Sweet Water. These seedlings seem to combine the hardiness of the one, while the fruit partakes of the flavor of the other. Among the varieties exhibited, we will only specify a few of the best and earliest.

* Working Farmer for June 1852.

No. 3 was the earliest, the fruit in size and color resembling the Diana, but earlier in ripening—of a sweet flavor.

No. 13 was a Grape of a red color, and of a peculiar aromatic flavor.

No. 5. This was said to be from the Sweet Water and Mammoth combined, very sweet fruit, and size of the Chaselas.

No. 15. This sort, we were informed by Mr. R., is considered by many to be one of the best Grapes in the collection—producing fruit of a rich and high flavor, color red.

No. 33. The specimens shown of this number were not equal to the high character attributed to it, as being equal to the Black Hamburgh, which it closely resembles in appearance.

No. 19. This large early Grape, of the size and color of the Black Hamburgh, we thought to be the finest variety shown, the bunches and fruit large and compact, a strong grower, and said by Mr. R. to be perfectly hardy. Among some half a dozen of his varieties which we set last spring, No. 19 has made as much wood as all the others combined. We cannot but consider this sort to be an acquisition for this locality, where the Isabella and Diana are apt to fail. It is said to have ripened its whole crop perfectly since the first year of its bearing, which was the first week in September, and has continued to improve in size and quality.

J. M. IVES, CHAIRMAN.

VEGETABLES.

The Committee on vegetables award the first premium—

To S. A Merrill of Salem,	8 00
The second to J. S. Leavitt of Salem,	6 00
The third to Richard S. Rogers of South Danvers,	4 00
A gratuity to Horatio Perry of Danvers,	3 00
Benjamin P. Ware of Marblehead,	3 00
Salem Alms house farm,	2 00
Charles Storrow of Lawrence,	2 00

Stephen Driver of Danvers,	1 00
Henry Buxton of South Danvers,	1 00
Robert W. Putnam of Danvers,	1 00
Adam Nesmith of Danvers,	1 00
S. B. Osborn of Salem,	1 00
Ezra Batchelder of Topsfield,	1 00
Daniel Buxton of South Danvers,	1 00
Israel Rea of Topsfield,	1 00
Uzziel Dodge of Beverly,	1 00
G. W. Trask of Beverly,	1 00
Moses Prince of Danvers,	1 00
Robert W. Buxton of South Danvers,	1 00
Malachi F. Batchelder of South Danvers,	1 00
A. J. Hubbard of South Danvers,	1 00
Dudley Bradstreet of Topsfield,	1 00
Amos Putnam of South Danvers,	1 00
Rea Nourse of Marblehead,	1 00
G. W. Winslow of Marblehead,	1 00
George W. Wilds of Danvers,	1 00
Alfred Griffin of Middleton,	1 00

Andrew Porter of South Danvers, for *the big squash*, the sincere thanks of the Society.

WILLIAM R. PUTNAM, CHAIRMAN.

FLOWERS.

The committee on flowers respectfully report that they have awarded the following premiums and gratuities :—

FOR DISPLAY OF DAHLIAS.

To C. S. Storrow of Lawrence, 1st premium,	4 00
G. D. Glover of Salem, 2d premium,	3 00
G. L. Davis of North Andover, 3d premium,	2 00

FOR CUT FLOWERS.

To G. L. Davis of North Andover, 1st premium,	3 00
Mrs. Edward Hodges of Salem, 2d premium,	2 00
Miss Belinda A. Brown of Danvers, 3d premium,	1 00

FOR FLORAL DESIGNS.

To Frederick Lamson of Salem, 1st premium,	3 00
S. S. Learoyd of Danvers, 2d premium,	2 00
Richard S. Rogers of South Danvers, 3d premium,	1 00

GRATUITIES.

To Miss E. G. Noyes of Marblehead, for splendid boquet,	1 00
E. P. Kettelle of Danvers, for floral design,	1 00
C. S. Storrow of Lawrence, for best display,	1 00
Miss Caroline H. Perry of Danvers, for boquet,	75
Miss Anna M. Wallace of Danvers, design,	75
Miss E. C. Lawrence of Danvers, fine boquets,	75
Miss H. C. Fowler of Danvers, for rare seed plants,	75
Frederick Porter of Salem, for boquets,	50
Miss Clara P. Black of Danvers, boquets,	50
Miss Alice L. Putnam of Salem, boquets,	50
Mrs. Charles F. Putnam of Salem, display of cut flowers,	50
Dr. Osgood of Danvers, variety of flowers,	50
Miss C. A. Leavitt of Danvers. boquets,	50
Samuel Driver of Danvers, boquets,	50
Caroline E. Smart of Danvers, dahlias,	50
Mrs. H. P. Town of Middleton, moss stand,	50
William M. Weeks of Salem, variety of flowers,	50
Miss C. P. Weston of Danvers, boquets,	50
Mrs. Otis Mudge of Danvers Centre, boquet,	50
Maria Porter of Danvers, stand of flowers,	50
Mrs. D. E. Preston, cut flowers,	50
Peter Wait of Danvers, boquet,	50
Mrs. S. A. Mudge of Danvers, cut flowers,	50
George Putnam of Danvers, basket of flowers,	50
Miss L. P. Stanly of Salem, boquets,	50

Your committee regret that the limited funds at their command would not enable them to award even gratuities to more than half of the contributors. Some thirty others who were about equally deserving were necessarily left to disappointment.

The general display was very gratifying to the committee, and larger probably than hitherto presented before the Society. An increased appropriation for this department would doubt-

less be more than reimbursed by the consequent additional attraction to the hall, and may be necessary to the continuance of even the present interest of floral contributors.

E. G. KELLEY, CHAIRMAN.

[A full report was promised, but was not received in season for publication.]

COUNTERPANES AND RUGS.

The Committee on Counterpanes, Carpetings and Rugs, report that the display of Counterpanes was very fair, still they could not under the rules of the Society award the first premium on any offered, and award—

To Mrs. Amos F. Hobbs of Wenham, the 2d premium,	2 00

Gratuities were awarded as follows:—

To Eunice Killam of Boxford,	1 00
C. G. Bancroft of South Danvers,	1 00
A. W. Geary of South Danvers,	1 00
Eliza Downing of Beverly,	1 00
Melvina L. Sanborn of Georgetown, four years, eleven months of age,	1 00
Abby M. Batchelder of Beverly,	1 00
Mrs. Joanna G. Allen of Essex,	1 00
M. Y. Sweeney of Topsfield,	50
Sarah R. Shillaber of Danvers,	50
Lucy Tenney of Georgetown,	50
L. F. Kimball of Danvers,	50
Mrs. Nathaniel N. Dummer of Rowley,	50
Mrs. Lucy C. Cogswell of Essex,	50
Phebe Morrill of Salem,	50

RUGS.

The display of Rugs was very good, and we are happy to say does credit to the industry, ingenuity, and economy of the fair matrons and daughters of "Old Essex." To see such a quantity and variety, beautifully wrought from scraps and pieces of little

or no value, afforded us pleasure, and we only regret we had not more means at our disposal to reward them.

We award to—

To Almira Bushby of South Danvers, 1st premium,	3 00
Nancy Endicott of Danvers, 2d premium,	2 00

The following gratuities were awarded :—

To Pamelia Cheever of Danvers,	1 59
L. S. Preston of Danvers,	1 00
Mrs. Amos F. Hobbs of Wenham,	1 00
Mrs. Emma Caswell of Wenham,	1 00
Mrs. Huldah Tarr, "	1 00
Mrs. Augusta Trask, "	75
R. N. Cook of South Danvers,	1 00
L. Smith of Manchester,	1 00
Mary E. B. Scidman of Danvers,	1 00
L. D. Batchelder of Danvers,	50
C. Richards of Danvers,	50
Hannah E. Pedrick of Danvers,	50
Mary D. Richards of Danvers,	50
Lucy Ross of Danvers,	50
Mrs. P. P. Wallis of Danvers,	50
H. U. Richardson of Danvers,	50
Mary P. Clough of Danvers,	50
Phebe Cross of South Danvers,	50
Hannah P. Swinerton of Danvers, stair carpet,	50
Mrs. Clarissa Porter of Danvers, rug,	50
Mrs. Charles Page of Danvers, rug,	50
Nancy Fisk of Danvers, rug,	50

CARPETINGS.

The Committee did not feel warranted, under the rules, to award a premium on any Carpetings offered, but recommend a gratuity to G. A. Tapley of Danvers, of 2 00.

The Committee found some articles not entered or numbered, and were obliged to pass them. Others appearing like *former* acquaintances, the Society forbid us to notice.

B. C. PUTNAM,
AMOS MERRILL,
DAN'L RICHARDS, } COMMITTEE.

ARTICLES MANUFACTURED FROM LEATHER.

The Committee on articles manufactured from leather report as follows, viz :—

For the best pair of men's thick boots, to E. P. Thompson of Georgetown, 3 00

Putnam & Perkins of Haverhill, for the best pair of men's calf skin thin boots, 4 00

E. P. Thompson of Georgetown, second best do., 2 00

P. S. Dwinell of Rowley, for the best pair of men's thick brogans, 2 00

Stickney & Co. of Groveland, for the best pair of men's calf skin shoes, 2 00

D. H. & C. Stickney of Groveland, for the best pair of women's calf skin laced boots, 2 00

S. Driver & Co., Salem, for the best ladies' slippers, 1 00

GRATUITIES.

The following gratuities have been awarded by the Committee :—

Savary & Co., Groveland, for two pairs of woman's Dutch boots, 2 00

S. Driver & Co., Salem, for 10 pairs of ladies' fancy shoes, 3 00

P. S. Dwinell, Rowley, men's extra sized brogans, 1 00

George P. Raymond of Danvers, 2 pairs women's merocco boots, 1 00

S. H. Stetson, Danvers, 2 pairs of Misses morocco boots, 1 00

N. K. Cross, Danvers, 1 pair children's morocco boots, 50

Mrs. Mary S. Bryant, Middleton, 1 pair women's enamelled boots, 1 00

William Black, Danvers, colored skins and bindings, 3 00

A. F. Wales & Co., Beverly, one express harness, 5 00

Timothy W. Emerson, Rowley, 1 pair of Men's thick brogans, 1 00

FANCY ARTICLES.

The Committee on Fancy and Miscellaneous articles would report that nearly 250 entries were made in their department, embracing probably more than 500 distinct articles, and consisting of a great variety of works of art, taste, ingenuity and utility, from the highly musical melodeon to the somewhat unmusical but nevertheless useful rat trap. Beautiful oil paintings and other pictures finely executed, adorned the walls of the hall. Excellent maps were contributed by the children of our public schools, and various articles wrought with the needle by children, as young even as four and six years. We also noticed articles of clothing many of them of a highly useful character. Embroidery, shell work and hair work, all very neatly fabricated, taxed the ingenuity of your committee to the utmost, to decide satisfactorily as to their merit. Very fine specimens of pressed flowers, in curious frames of seeds were exhibited ; also specimens of carving in wood, of much merit. We cannot omit to mention the exquisite workmanship of that cunning insect, the bee, more beautiful and curious than anything fashioned by human hands, which was exhibited, together with large numbers of the workmen themselves.

Not less inviting to the Committee, and the people at large, as subsequent events proved, were those family luxuries, nice bread, pies and cakes, contributed by the mothers and daughters of Essex.

We would especially mention as worthy of notice the melodeons on exhibition, manufactured within the county, by Messrs. Manning & Nichols of Salem, thus providing our musical friends with fine instruments of home manufacture.

Very fine oil paintings were exhibited by a native of our county, Mr. Bushby of South Danvers, and numerous pictures, executed with great taste and skill, by the fair daughters of Essex. There were various articles skilfully manufactured, principally from the seeds of the sqnash, beans, corn, &c., indicating a surplus of the staff of life in our favored county.

We find by reference to the report of the Committee on fancy articles in the Transactions of last year, a very judicious plan proposed relative to a division of the labor heretofore performed by this Committee, so that the articles embraced in the list, for

which *premiums* are offered, shall be examined by a separate committee. It will be found that in addition to the articles in charge of this Committee heretofore, the list the present year comprises musical instruments, bread and honey. We would therefore repeat the suggestions of the Committee of last year in this regard, as in our view entitled to notice and adoption, and add as a proper list for a third Committee the articles of bread and honey. We propose also, that the premiums offered for wrought lace be discontinued, as but one specimen was offered the present year, and as we learn from the best authority articles of that description are not now in vogue with the fashionable world.

We respectfully ask the attention of the Committee having in charge the revision of the premium list for the coming year, to the necessity of some such change in this department as is noticed above.

To Dean Perley, Topsfield, for a box of honey, gratuity,	1	00
Levi Fish, Danvers, hive of honey, &c., gratuity,		50
Glover & Bosson, Salem, boxes of honey, gratuity,		50
Joseph Chase, Manchester, a beehive, gratuity,		50
Cyrus Fuller, Danvers, beehive, gratuity,		50
G. H. Southwick, Danvers, observatory hive, gratuity,		50
B. S. Moulton, Danvers, shoemakers bench,		50
J. Proctor, Danvers, shoemakers bench,		50
The Glen Mills, Rowley, specimen of flour,	1	00
Mrs. J. H. Learoyd, Danvers, for pies,		50
Miss Caroline A. Perley, Danvers, pies,		50
Mrs. Dr. E. S. Phelps, Middleton, bread,		50
Emily Lewis, South Danvers, bread,		50
Mary E. Pope, Danvers, bread,		50
Mrs. A. Mudge, Danvers, bread,		50
William Andrews, Topsfield, for horse shoes,		50
Jefferson Kimball, Boxford, horse shoes,		50
David Stiles, Middleton, horse shoes,	1	00
John Hale, Jr., Boxford, small sleigh, gratuity,		50
Luther F. Allen, Manchester, carved work, gratuity,		50
Leach & Annable, Manchester, carved work, gratuity,		50
H. Dwinell, Danvers, carved work, gratuity,		50
Manning & Nichols, Salem, melodeons, gratuity,	1	00

D. B. Brooks & Brother, Salem, melodeons, gratuity, 1 00
H. & H. G. Hubon, burial casket, gratuity, 1 00
Mrs. Joel R. Peabody, Topsfield, wrought lace, 2d prem., 2 00
Mary W. Pope, Danvers, work performed by a child under 12 years of age, 2d premium, 2 00
Harriet W. Preston, Danvers, crayon drawings, 1 00
Lydia A. Putnam, Danvers, pictures and frame, 1 00
Miss L. M. Ives, Salem, sofa cushion and piano stool, 50
Asa Bushby, 2d, South Danvers, 2 paintings, 1 00
H. F. Stimpson, Danvers, 1 hair wreath, 50
Maria A. Perly, Danvers, hair work, 50
Harriet A. P. Putnam, Danvers, hair work, 50
Clara H. Mudge, Danvers, under 12 years of age, 5 articles of crochet work 50
Maria P. Putnam, picture, &c., 50
S. A. Ball, South Danvers, worsted work pictures, 50
Mrs. P. A. Porter, Salem, Grecian painting, and fancy chair and silk tidy, 50
Miss L. F. Tyler, Salem, ottoman, 50
Mrs. Margaret Putnam, Salem, lamp mat, 50
Caroline Upton, Salem, 11 years old, tidies, lamp mats, &c., 50
J. O. Lefavour, under 12 years of age, Danvers, fancy cushion, 50
John Albree, 14 years of age, Salem, Grecian painting, 50
Lydia Putnam, Danvers, flannel embroidery, 50
Adda Munsey, Danvers, worsted work, 50
L. S. Preston, Danvers, ottoman, 50
Sarah R. Bradstreet, Danvers, hair work, 50
Sarah S. Dodge, Danvers, table cover and other articles, 50
Ruel Pray, Danvers, 1 fancy box, 50
Louisa L. Putnam, Danvers, cruel shawl, 50
Mrs. Benjamin Joy, Danvers, wrought cape and sleeves, 50
Grace Fabens, Danvers, crochet shawl, 50
M. F. Demsey, Danvers, shell frame, 50
Mary E. Verry, Danvers, 1 picture, 50
Abbie J. Colcord, Danvers, 1 map United States, 50
Amelia M. Davis, Newburyport, crayon sketch, &c., 50
Nellie M. Whittredge, Lynnfield, portfolio and oriental stand, 50

Fidelia F. Putnam, Danvers, crayon landscapes,	50
Mary Watson, Salem, 1 moss basket in shell frame,	50
Caroline Plummer, Newbury, knit jackets and hoods,	50
Matilda Plummer, Newbury, shawl,	50
Hattie L. Brown, Danvers, wax flowers and worsted boquet,	50
C. P. Weston, Danvers, drawings, map of Asia and Africa,	50
Catharine F. Demsey, Danvers, picture,	50
Julianna Morse, fancy moss work,	50
Chas. Bailey, Manchester, seed monument, &c.,	1 00
Mrs. Amos Price, Danvers, infant's skirt,	50
Mrs. S. L. Streeter, Salem, articles for infants wear,	50
Mrs. Henry Cummins, Gloucester, clothing for children, and various other articles,	1 50
Mrs. Henry Cummins, Gloucester, shell cabinet, pressed flowers,	3 00
Peter Waite, Danvers, bouquet of flowers and frame,	50
J. Downing, Georgetown, 1 fancy steamer,	50
Willie M. Whitteredge, Lynnfield, fancy stand and book cover,	50
Charles F. Hobart, Salem, cruel work,	1 00
Charles A. Shepard, Danvers, rat trap,	50
M. E. Porter, Danvers, crayon drawing,	50
M. H. Weston, Danvers, picture,	50
Lydia C. Currier, Danvers, picture,	50
Lydia Fesson, Gloucester, pressed flowers in fancy frames,	1 00
S. B. Roundey, Marblehead, netted cake cover,	50
Mary P. Clough, Danvers, shell work,	50
Caroline Upton, Salem, under 12 years of age, various articles of dress,	50
Clara P. Black, Danvers, drawings,	50

C. P. PRESTON,
D. STILES, JR.,
G. L. HAWKES,
LUTHER ALLEN,
JOEL LAKE,
} COMMITTEE.

DAIRY.

There are few branches of husbandry in which Massachusetts has not to compete to her disadvantage with the fertile prairies of the West. Dairy products, however, are most appropriately and acceptably raised at home, and the thrifty towns of New England afford ample markets. These productions of the first quality are not so abundant as to be a drug in our markets any where. There is even a great and increasing demand for them, and this demand is of that character most encouraging to the producer. Instead of being changeable and fluctuating, it is very steady and constant, and great reward is extended to those who become adepts in all the arts connected with the Dairy.

The farmer of modern times is required to study other things beside the mere manipulations of the farm; he must know the phase of the markets as much as any trader or merchant, and he who is indifferent and unenquiring in this respect is ousted, as far as markets are concerned, and his neighbor, who is more active and business-like, supersedes him.

There is room for a much greater extension of this department of husbandry in our own county. It appears from the papers submitted to the Committee, that a variety of methods were adopted in the making of the butter offered for premiums; and no less various, certainly, were the results attained.

There can be no question that the expression of the butter milk is a very important part of the process, and upon the thoroughness with which this is accomplished depends in a great measure the quality of the butter. This should be done at once, if possible, and as soon as may be, instead of allowing the butter to remain over night with only a washing with cold water, and a whole day longer, before the last effort is made to express the milk, as was one of the methods adopted. It was the opinion of the Committee that the general quality of the butter was not remarkably fine, which is not to be wondered at when complaints have arisen on all sides during the summer months that unusual precautions were necessary to obtain superior butter.

There were twenty-nine entries of this article and five of cheese, and no other applications were made for the premiums offered in this department.

They considered very carefully the matters referred to them, and recommend that the premiums be awarded to the following persons :—

BUTTER.

To Mrs. Dean Holt, Andover, the 1st premium,	$10 00
S. L. Ridgway, West Newbury, 2d premium,	9 00
Abel Burnham, Gloucester, 3d premium,	8 00
Ezra Batchelder, Topsfield, 4th premium,	7 00
James Perry, Danvers, 5th premium,	6 00

CHEESE.

To William Marshall, Essex, 1st premium,	$8 00
D. L. Goodrich, West Newbury, 2d premium,	6 00
Rebecca Moody, Newbury, 3d premium,	4 00

They would also make honorable mention of a box of butter offered by Farnum Stiles of Middleton, containing fourteen lbs. This quantity being less than that required by the society, the Committee were not at liberty to award a premium, but they believed it to be of a quality deserving of the second premium under other circumstances.

G. P. SARGENT, CHAIRMAN.

MRS. DEAN HOLT'S STATEMENT.

I present for your inspection sixteen pounds of September butter.

PROCESS OF MAKING. The milk is strained into well scalded tin pans, and allowed to stand thirty-six hours in a cool cellar, when it is skimmed into stone pots, and stirred morning and evening. We churn twice a week. The butter is well washed with cold water and salted, with one ounce of rock salt to a pound. After standing from eight to ten hours it is well worked. The next morning it is worked again, and then made into lumps for the market without coloring or ornament.

Andover, September 27, 1859.

SARAH L. RIDGWAY'S STATEMENT.

I present for your inspection fifteen pounds of September butter, made in the following manner :—

The milk was strained into tin pans and allowed to remain

thirty-six hours in a clean, well ventilated cellar, appropriated *exclusively* to milk, cream and butter, when it was skimmed as free from milk as possible into tin pails, and stirred morning and evening. As soon as churned the butter was well washed in cold water, and salted to the taste with rock salt. After about ten hours, at *evening*, it was worked with the hands, and in the morning worked again, and put up as presented. I churn twice a week.

West Newbury, Sept. 28, 1859.

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ABEL BURNHAM'S STATEMENT.

I enter for premium a pot containing twenty pounds of June butter; also a pot of September butter.

PROCESS OF MAKING. The milk is strained into tin pans and placed in a cool cellar prepared for the purpose, and allowed to stand from twenty-four to thirty hours while the milk is sweet. The cream is put into a stone pot and stirred daily, and churned once in five days. The butter is thoroughly worked and salted with rock salt. There is no coloring in either of the lots.

Gloucester, September 27, 1859.

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EZRA BATCHELDER'S STATEMENT.

I present for your inspection a box of September butter.

The milk is strained in tin pans and set in a cellar prepared for the purpose, and stands from thirty-six to forty-eight hours, according to the weather. Churn once a week. The butter milk is worked out by hand and the butter salted to the taste.

Topsfield, September 27, 1859.

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JAMES PERRY'S STATEMENT.

I present for your inspection fifteen pounds of September butter.

PROCESS OF MAKING. The milk is strained into tin pans and placed in the cellar, where it remains from thirty-six to forty-eight hours, when it is skimmed and the cream placed in a cool place until churning, which is done once a week. After churn-

ing the butter milk is thoroughly worked out and the butter salted, with about one ounce of salt to the pound.

Danvers, September 28, 1859.

—

WILLIAM MARSHALL'S STATEMENT.

I present for your inspection four new milk cheeses, as a specimen of some seventy-five cheeses made the present season in the following manner :—

The milk is set immediately after the evening milking, rennet added in sufficient quantity to form a curd in about thirty minutes. It is then broken up gently with the hand, separated from the whey and left to drain until morning. The curd is sliced, the morning's milk strained upon it, and the process of the evening repeated. After it is thoroughly drained it is ground fine, salted with about eight ounces of salt to twenty pounds of cheese and pressed twenty-four hours.

Essex, September 28th, 1859.

—

D. L. GOODRICH'S STATEMENT.

I present for examination three new milk cheeses. Each cheese contains the milk of two days. My manner of making is as follows :—Strain the evening milk, add rennet in sufficient strength to form a curd in thirty minutes. Let it stand an hour, then break and place it to drain until morning ; repeat this process with the morning milk. Scald the curds with water, drain thoroughly, chop fine, salt, and press twenty-four hours. Two of the cheeses are sage. The sage is pounded and put to soak in milk. Take one-third of the milk designed for the cheese and strain the liquor into it ; add rennet, and keep it separate from the other curd until time to chop, then mix and put to press.

West Newbury, September 28th, 1859.

—

REBECCA MOODY'S STATEMENT.

This sample of more than fifty pounds of cheese, was made by

straining the night's milk in tin pans. In the morning the cream is stirred into the milk, when the whole is warmed and the morning's milk added, with rennet sufficient to form a curd in thirty minutes. The curd is broken and left to drain, after which it is covered with warm water fifteen minutes, drained, chopped fine, and salted to the taste.

Newbury, September 28, 1859.

PLOUGHING—DOUBLE TEAMS WITH MICHIGAN PLOUGH.

The Committee on Ploughing with double teams and Michigan Plough, beg leave to make the following report :—

The number of entries was four. They have awarded—

To Kendall Jenkins, Andover, the 1st premium, $7 00

Ploughman—Henry Gould. Driver—Kendall Jenkins.

Jacob Farnham, North Andover, 2d premium, 5 00

Ploughman—John J. Foster. Driver—Benj. H. Farnham.

Richard T. Jaques, Newbury, 3d premium, 3 00

Ploughman—Hiram Young. Driver—Richard T. Jaques.

The ploughs were all of Prouty & Mears' manufacture.

JAMES P. KING,
JOHN D. CROSS,
JAMES D. WHITE,
BENJ. F. JENKINS, } COMMITTEE.

PLOUGHING WITH DOUBLE TEAMS, AND ANY OTHER FORM OF PLOUGH.

There were thirteen entries, only nine teams however appeared on the ground. The lots contained one-sixth of an acre each. There was some difference in the land in consequence of stones, cart paths, and other causes. The work, however, was all well done, and so nearly alike that it was with some difficulty that the Committee could satisfy themselves which of the

competitors should in justice receive the several premiums. After due consultation, however, they would recommend the following :—

To Joseph Goodrich, West Newbury, the 1st premium, 10 00
Joseph Goodrich, driver; Daniel S. Goodrich, ploughman.
Richard S. Bray and N. Illsley, Newbury, 2d prem., 9 00
Richard S. Bray, driver; Eben Bray, Jr. ploughman.
Moses H. Poor and Thomas G. Ordway, West Newbury, 3d premium, 8 00
Moses H. Poor, driver; Edwin E. Poor, ploughman.
James Carey, Swampscott, 4th premium, 7 00
James Carey, driver: Henry Clapman, ploughman.
A. P. Fuller, North Andover, 5th premium, 6 00
Samuel Foster, driver; A. P. Fuller, ploughman.
William Foster, North Andover, 6th premium, 5 00
William Foster, driver; Rufus A. Reynolds, ploughman.

There was but little difference in the time occupied by the different teams in performing their work, except that Mr. Goodrich's team performed its work some minutes sooner than the others. That, however, had no influence in the awarding of the premiums, as the Committee were not favorable to excessive quick ploughing. The nine ploughs that were used were manufactured by six different companies; as to their comparative value different individuals have their preferences.

The Chairman of the Committee offers a few remarks on his own responsibility. However important good ploughs may be, other things are of nearly as much importance to make good work.

A strong well disciplined team is necessary. I say strong because a team that can proceed without an extra effort is more certain to make a straight furrow and good work than a team of a different character. A good teamster is also necessary; for a team cannot be well disciplined without a good teamster; and even after it is disciplined, perfect work cannot be performed without a good teamster.

A good ploughman is also necessary to make good work. He should not only understand how to hold the plough: he should also understand how to arrange it, to give the right width and depth to the furrow, as the width and depth should be of suita-

ble proportion to make good work. A deep narrow furrow will not turn well, neither will a shallow wide furrow turn well.

As to the best mode of ploughing, to lay the furrow flat or otherwise, depends on circumstances. If it is for immediate cultivation, and the sward is tough and hard, the manure may be more easily worked in, and it will be easier hoeing if turned flat, but the crop may not be any better. If it is designed for cross-ploughing before being cultivated or planted, the sward will rot quicker by ploughing rather shallow and not turning the furrow perfectly smooth, but letting one furrow lay on the edge of the other.

Deep tillage is generally understood to be desirable. This again depends on circumstances. Turning up a large amount of subsoil and using but little manure sometimes proves unfavorable for the present crops; but with plenty of manure there is no danger of cultivating too deep, unless the subsoil is very unfavorable.

It has been said that every ploughman should understand how to arrange the plough. This however cannot always be expected, as farmers are under the necessity of hiring men that are but little acquainted with ploughing. Therefore it is necessary that every farmer should personally not only understand how to arrange and hold his plough, but all the other departments of farming.

A man within the knowledge of some of your committee, who owned a large farm, well stocked with cattle, horses, and implements of husbandry, went to a store to purchase a plough, saying that he had a plough that was formerly a good one—that it was not worn out, but did not work well, but the cause of so great a change when there was apparently no defect in the plough, he could not understand. The trader, fully understanding how to arrange and hold a plough, if not to make one, very kindly took a plough to the farmer and used it in his field to his satisfaction. The new plough being purchased, the old one was examined, to ascertain, if possible, the cause of the difficulty. The observing eye of the trader at once saw the defect, saying to the farmer if you will come to my store and purchase a new point, your plough will be as good as ever.

From the above we may learn the following lesson—that ev-

ery farmer should be well informed as to his own business, and not be under the necessity of calling on his neighbors or traders for advice; for should he do so, they will most assuredly sell him the new plough before they recommend a point to the old one.

JOSEPH HOW,
ANDREW MANSFIELD,
RANDALL ANDREWS, } COMMITTEE.
PAUL TITCOMB,
SAMUEL CARLTON,

PLOUGHING WITH HORSES.

The Committee on ploughing with horses, and any form of plough, were unanimous in awarding the premiums as follows:

James Cary, Swampscott, 1st premium,	$7 00
Francis Farrington ploughman and driver.	
H. B. Allen, South Danvers, 2d premium,	5 00
Himself ploughman and driver.	
Charles E. Abbot, Andover, 3d premium,	3 00
George A. Abbot ploughman and driver.	

HENRY A. KING,
FRANKLIN ALLEY, } COMMITTEE.
WILLIAM H. FELTON,

PLOUGHING WITH SINGLE TEAMS.

The committe report that there were but two entries for ploughing with single ox teams—viz one by Jedediah H. Barker, of North Andover and one by Franklin Alley, of Marblehead.

Mr. Barker held his own plough; Mr. Alley's plough was held by G. N. Winslow--and there was no other driver but the ploughman to either of the teams.

The Committee award to Mr. Alley the first premium $7 00, and to Mr. Barker the second premiun, 6 00

The following miscellaneous remarks are submitted by the Chairman of the Committee.

It seems hardly within the bounds of propriety that the exhibition of ploughing at our County Show, so underlying all other great industrial operations, should be allowed to pass off, as is sometimes the case, with the mere announcement of the award of premiums. The Committe, indeed, all of whom were present except one, whose place was filled by Mr. Tenney, having given the closest attention to the duties assigned them and having pronounced their decision unanimously made, separated; so that they as a Committee cannot be held responsible for the remarks that follow.

The lots for ploughing were laid out as usual, 210 feet long and 34½ feet wide, containing one sixth of an acre each. The time of commencing was 10 o'clock 13 minutes. Mr. Winslow finished at 12 minutes before 11 o'clock, and Mr. Barker one minute later. Mr. Winslow's team being 35 minutes, Mr. Baker's, 36 minutes. Both ploughs turned the furrows so as to leave no vegetation in sight. The land was left by Mr. Barker's plough (Robinson's) in a condition somewhat more friable, than by Mr. Winslow's, (Parker & Co's.) This appeared to be the effect of leaning the plough to the right. It would undoubtedly be a recommendation to a plough to leave the surface mellow, provided it could be done without detracting from the quality of the work in other respects. Mr. Winslow's (Parker & Co's.) plough left the bottom of the furrow level, and the land side perpendicular. Mr. Barker's plough, by being held out of perpendicular, leaning to the furrow, left the bottom uneven and the land side cut under, thus leaving an unfinished appearance. Mr. Barker uses the Robinson Plough, No. 11, and was his own ploughman.

The Plough entered by Mr. Alley was fresh from the Agricultural warehouse of Parker, Gannett & Osgood, of Boston, marked "Lion No. 61;" It was operated by Mr. Winslow, and for the sake of convenience his name is here used instead of Mr. Alley's, the owner.

Mr. Winslow held his plough upright, and accordingly left the bottom of the furrow flat and the land side of the furrow perpendicular. Mr. W. is an accomplished ploughman, the uniform width of his furrows and consequent uniform width of his land, were preserved admirably from beginning to end.

Mr. W's furrows were cut about two thirds of an inch narrower than Mr. Barker's the effect probably of holding the plough *upriyht*. It was interesting to notice his calculation for the last furrow. For some reason not explained to the committee, Mr. W. arranged to leave off at the end opposite to that where he began, and in effecting this, it bcame necessary to go once over the ground without any furrow. The width of the final furrow was as uniform throughout as though gaged by a carpenter, and the turning of this furrow was performed to admiration.

Mr. Barker's plough would have ranked very high a few years ago, but since the "Lion" of the Boston house, already mentioned, has taken the field, it is useless for any but the *very best* to attempt to compete. That Mr. B's plough cut its furrows nearly an inch wider than Mr. W's. appeared to be the effect *of leaning it* to the right.

Although Mr. Winslow finished his work one minute before Mr. Barker, yet *it was not on that* account that the first premium was awarded to him. This is stated for the purpose of assuring competitors, that *speed alone* is not the true criterion.—Farmers must watch the improvements constantly being made in the plough as well as other implements for the farm, and avail themselves of such improvements. We are seeing the day when more intellect is expended in a single year upon improvements in the plough, than was formerly put in requisition in a century. And notwithstanding the great perfection to which this implement is carried, the constant advance that is being made, almost warrants us saying that the field of competition is as open as ever it was. Some seven years ago, a member of our committee paid thirteen dollars for a celebrated plough from a celebrated house, but it never run well, and has not been used at all for four years.

The points upon which improvements in the plough depend, are *often minute*, and *nameless*. Mathematics fail to bring out the perfection which some distinguished men have expected. "A gentle hollow curve" for a mould-board is too indefinite, certainly. The whole subject is intricate. Of this, any one may be easily satisfied by attending a trial in Court for an alleged infringement of a patent. The late distinguished Judge Story

talked cleverly on the subject of ploughs, that is to say, if the comprehension of jurors might be consulted. "The introduction of a new principle, or a new combination of old ones" is said to be sufficient to defeat a charge of infringement. But in such a tool as the plough, who could so point out the shades of difference as to be intelligible to a jury, even with all the models and *bona fide* ploughs which blocked up the Court-room and the passages leading to it, in a trial a few years ago before the lamented Judge just referred to? Between the improved plough of John Small, and the *wedges* called such, in and before his day, a difference could be seen, of course:—between Small's and Mr. Jefferson's the difference was less perceptible and more indefinable; and between Jefferson's and those brought out at the shows twenty-five years ago, a practised eye would detect the shades of difference easily, no doubt. But who would undertake *in words alone* to show the variations between two such ploughs as are frequently brought upon the field on the day of the annual show, however different the work might be which they should perform?

I have said that mathematics when applied to this subject, seemed to fail of bringing out a perfect plough. Ferguson's celebrated Scotch Plough was made upon *mathematical principles* as calculated by Mr. Jefferson. But when this plough was put upon trial by Mr. Pusey, President of the Royal Agricultural Society of Great Britain, and subjected to the most complete set of experiments then ever instituted, as reported in the third number of that Society's Journal, "instead of requiring the least power of draft, it required the most," owing to "its *long wedglike form*, the great surface of its mould-board, and its *wanting a wheel*, which made its surface-draft so enormous."

American ingenuity might seem to be entitled to repose for a while, until other nations come up. Foreign countries are behind us in the matter of the plough as well as the Reaper. Englishmen affect to scout Mr. Webster's remark on his return from Europe, viz: *that he had seen nothing abroad which would compare with American ploughs;* but he was right, for by the Report of a Committee at a most thorough trial at Sing Sing, in Oct. 1842, it appears that the Enropean ploughs cut their furrow-slice 10 inches broad and 6 deep only, while the Ameri-

can cut 12 inches wide and 8 deep. But Yankee ingenuity asks for no repose, indeed we should not desire to have any.

It is hardly necessary to say, perhaps, that it is not possible for the same plough to work well in entirely different soils. It is said, indeed, that the Vermont "Universal Plough," invented by Mr. Holbrook, is an exception. It is said to be fitted by having a variety of mould-boards for any soil. The inventor probably took his hint from a description of one of the old Roman ploughs, which was fitted with extra mould-boards for the same purpose, but which has been suffered to go out of use by the common consent of mankind.

HISTORY OF THE PLOUGH.

Roman history throws light upon the plough as an instrument of agriculture. Cato mentions two kinds, one for strong and one for light soils. Varro mentions a plough with two moulboards for the purpose, he observes, of ridging when they plough after sowing the seed. The Romans have ploughs, says Rev. A. Dickson, with mould-boards and without mould-boards, with coulters and without coulters, with wheels and without wheels, with broad pointed shares and with narrow ones, not only with sharp sides and points, but with high raised cutting tops. The simple Roman ploughs, says the London Encyclopedia, by which is probably meant the plough for light soils, had no mould-board or coulter: the "plough staff" was also a detached part, and the manicular which the ploughman took hold of, was a short bar fixed across; and to the draught-pole the oxen were attached. Virgil's plough had a mould-board, says the Encyclopedia, but the common plough for light soils, instead of the mould-board, required either a stick inserted in the share-head, or to be held obliquely. "Circumvolving furrows" says the Encyclopedia, "as employed by us, were not practised among the Romans, but the cattle returned in the same furrow"; by this we understand one of two things, viz: either first that the team did not *go round* the land, leaving the dead furrow in the middle, but by ploughing all on one side, losing one travel of the team for every furrow, the dead furrow would be brought out on the *side* of the piece ploughed, or secondly, the plough must have been our *side hill plough*, in using

which, as now used, the dead furrow would come on one side, without any loss of travel. This is the more probable, although not a word is said about a side hill plough.

Indeed, in reflecting on this sketch of the Roman ploughs, we are struck with the fact that the ploughs of that day *anticipated* every kind in use among us; many went beyond anything we know, unless indeed, the Vermont Universal Plough already referred to, be an exception. Probably agriculture and agricultural implements all declined with the Commonwealth itself and died, or went into a long exile, from which they have never returned to the papal fields. One maxim in Roman agriculture ought not to be overlooked, viz:—"Sow less and plough better,"—a maxim worthy of lasting remembrance and constant practice.

Agriculture, like religion, merely *glimmered* through the dark ages. Flocks and herds in England were the order of the day, yet upon these the Saxons seized for their own use. "No man might guide a plough who *could not make one*, and the ropes with which it was drawn were to be made of twisted willows; *it was usual for six or eight persons to form themselves into a society for fitting out one of these ploughs.*" Let a society of this kind be compared with the Agricultural Societies of Massachusetts in our day!

Nothing could be more interesting than to trace the history of the plough from the time when it required 12 oxen or 8 horses to draw the "Turnwrest plough," with two able men to hold it, and one or two to bear upon the beam and two drivers, down to our times, when two oxen, with *one* man to hold, none to drive and *none* upon the beam, can plough at the rate of an acre in six, or even five hours. In passing, however, look a moment at the great Hertfordshire wheel plough, "a great favorite" in its day, yet according to Arthur Young, "heavy, ill-formed and ill going," the ploughman obliged to walk wholly on the unploughed land, resting nearly all his weight upon the handles, his body making an angle of 45 degrees with the horizon. Three or four inches of the furrow next to the unploughed land were cut three inches deeper than the rest of it, though the surface was left looking quite well.

And in connection with the mention of this heavy Hertford-

shire plough may be contrasted the first great, yet *overdone* improvement—viz.the Rotherham plough, weighing only 1 1-4 cwt. Such facts go to show the entirely unsettled theories of those times. It was for James Small, a Scotch mechanic, to invent the iron mould board and attach it to his swing plough, giving it such weight and power as to make it a general favorite from 1764 nearly down to our times. The name of this inventor should not be forgotten. His plough would look rude perhaps, at the Essex County Cattle Shows, but it delighted the Dalkeith Farming Society, to turn from the old Scotch plough, requiring a force of 16 cwt to draw it through an "old ley," to Small's plough, doing the same work with "a force of from 9 to 10 cwt." Yet all this while even James Small was no mathematician, and it remained for later times to apply scientific principles to this noble instrument.

It must have been gratifying to an American fifty years ago, to discover the fact that the famous Scotch plough of Ferguson, which obtained so much celebrity from Mr. Loudon's praises bestowed upon it—(he declared that it was superior to any similar plough known in England)—was constructed upon the principles before referred to, laid down by Mr. Jefferson in his celebrated Report "on the true shape of the mouldboard," addressed by him to the French Institute, in which he showed from mathematical data that it should be in the form of a "gentle, hollow curve," while the ploughs in use were generally "more full and short, not raising the earth gradually like a wave, but throwing it over at once." It is known that Mr. Jefferson left France for America in 1789, so that his plough was invented after Small's, and was an improvement upon it.

I have already said that ploughs constructed upon the principles suggested by Mr. Jefferson were faulty. Was this the effect of his mathematics, or of the method of applying them? Or is it not more probable that a perfect plough would *grow out of a long observation of long continued, carefully made experiments;—experiments made under the eye of keen intellects and a keener competition*? The mathematical rule in application to the draft of the plough is, that the *resistance is in proportion to the square of the furrow depth.* Thus if at the depth of 4 inches the draft required were 252 pounds, at the depth of 7 inches the draft would

be 771—(the square of 4 being 16, and of 7 being 49.) But by Mr. Pusey's experiments the result proved otherwise. In a moory soil the same plough, which at the depth of 6 inches required a draft of 306 pounds, required 700 pounds at the depth of 12 inches.

If my suspicion be true, that it is experiment and not arithmetic, observation rather than algebra, that is to work out the grand problem of a perfect plough, then, as before intimated, the field of competition is still open. And with the present system of annual exhibitions and governmental patronage, the presence of woman, the orator's voice furnishing music for everybody to keep step to, aye, and the presence of those whom Thomson calls the *kings and awful fathers of mankind*, why should not improvements in the plough go on to their utmost possible limit? I am brought in closing to say a word on the subject of

PLOUGHING MATCHES.

The Monthly Farmer in the May number for 1841, published by Gov. Hill of New Hampshire, contains the following item from the Maidstone Gazette:—An extensive farmer of Essex, (England,) not many years ago, happened to lose his ploughman, and went to the overseers of the parish poor for another. Out of over sixty men at work on the roads not one could be found who could hold the plough. The magnitude of the evil induced seven farmers to join him in a Society, which offered premiums for the best ploughman. This is said to have been the small beginning from which all agricultural associations have originated."

Beyond all dispute the public exhibition has made ploughing and the plough nearly all they are. Dr. Franklin's remark upon foppery in dress, that "it is other people's eyes that spoil us," has its application here conversely; "it is other people's eyes that make us." No man will venture himself upon the arena to be shot at, or to shoot at others, without long practice. The field presents a ring of competitors, every one of whom understands that with all the civilities and courtesies and smiles and bows of the occasion, there is not one there who will not utterly supplant him if he can. This calls for the long preparation, not only of himself but his driver, the team, and above all the

Massachusetts, and especially Essex county, has a lesson to learn from the remarks of Judge Buel, who says that when a state draws its principal subsistence from either manufactures or the sea, owing to bad soil, climate or geographical position, AGRICULTURE WILL NOT SUCCEED. In Essex county, with the ocean around half our border and a million manufacturing wheels within our hearing, both offering splendid rewards with little labor, agriculture would stand small chance without a smiling patronage. In Spain, Portugal and the Papal States, that patronage was withheld and public opinion degraded it, and it died. In Russia, Prussia, Poland and Hungary the laws villainized it, and there too it died and was buried. The implements of husbandry in those countries are monumental of these facts. "The ploughs in the north of Europe act like a *wedge*, perpendicularly; those of Tuscany resemble a shovel, eight or nine inches long and nearly as broad, and act horizontally."* And it is impossible to say what we might not have been using for ploughs even here, were it not for the exhibitions. The remnants of old ploughs exhibited at the show a year or two since, so shocking to look at, have been made to do the ploughing within the memory of many, and would run still were there none better. But for the public ploughing match the splendid "Lion No. 61," of Parker, Gannet and Osgood would never have been, and the ingenuity and enterprise of that firm would have run in some other direction. It may be true that other ploughs have their valuable *points*—we know that competition, as before said, is violent, and many a man would die in the furrow before he would yield and admit that any other plough conld be equal to his own. It is well that the world is wide, and *fields* are so open and the play so fair.

In looking at the operation of ploughing at the Show, it was impossible to overlook the fact that this grand instrument, aside from its use as a plough, is a wonderful thing as a mere *mechanical power*. In 1424 the day's work of a man in Scotland was set-

* A friend at my side during this present writing, lately from California, says he has seen great numbers of Spaniards ploughing, (rooting ?) with a part of a tree, a little piece of iron stuck on in the place of a point, and the Spaniard having apparently no idea of anything whatever or wherever better.

tled by law to be the digging of a piece of ground "equal to *seven square feet*." Compare this with the work at the exhibition in Danvers, where a man with different diggers and the help of two oxen only, turns 7260 square feet of turf land bottom up in 35 minutes by the watch!!

A careful calculator in an Agricultural Journal says that one inch in depth of an acre of soil weighs about 100 tons. Of course six inches, (the depth ploughed by single teams,) would weigh 600 tons. Suppose the team to plough but one acre in a day, and to cut the turn 14 inches wide, the plough in that case moves 600 tons 14 inches, or 1 2-12 feet. But at a fair speed the team would plough two acres, making 1200 tons moved that distance in one day. In what other way could the strength of oxen be applied to procure such results, taking the *body to be moved* in such a situation as we find the soil?

One other topic, wholly incidental, may be mentioned in this connection, which may prove interesting to the leg-aching boy-driver, who often wishes he knew how far he travels in ploughing a given time. Mr. Pusey says that "in cutting a furrow nine inches wide, the team travels *eleven miles* in ploughing an acre." Consequently by cutting 12 inches wide the travel would be 8 1-4 miles, or at 14 inches the travel would be 7 miles and some 20 rods. This is a small amount of travel, and goes to show that the apparent fatigue of the team when the draft is easy, is *only apparent*. By cutting furrows 12 inches wide only, the travel for two acres would be but 16 1-2 miles. And when the farmer's fields are cleared of rocks, and *Lion ploughs* are put into them, the farm-ploughing may become as expeditious, if not so exciting as the match-ploughing now is. And may we not hope for the permanent benefit of our farms that the mowing machine together with the plough, will use such an argument for digging rocks, as shall in its consequences speedily take all the killing hard work of mowing and ploughing off of the man who cannot bear it and put it on the team that can.

DAVID CHOATE,
E. S. PARKER,
W. N. CLEAVELAND, } COMMITTEE.
D. M. TUKESBURY,
RICHARD TENNEY,

FAT CATTLE.

The Committee report that there were eight entries, comprising fifteen beef animals. After a careful examination of them, taking into consideration their form and fineness of bone, points of no slight consideration, and which in our opinion go far to determine the superiority of the beef animal, we award—

To Joseph Kittredge, North Andover, the 1st premium,	$10 00
Joseph Hathaway, Marblehead, 2d premium,	8 00
William N. Cleaveland, Boxford, 3d premium,	5 00

On most of the objects for which premiums are offered, if the awards were accompanied by full reports of the grounds on which they are made, suggestions or extended remarks by the committees respecting the many points wherein success or failure is made, or improvements are to be desired, and the means by which they are attainable, the reports would be more interesting and more instructive. Our Transactions would be much more valuable, and would be preserved carefully for future—almost for daily—use by farmers. They would constitute a guide book, to which they would refer when in doubt on any of the operations of husbandry.

As to fat cattle there is a diversity of opinion as to the qualities that render them desirable or marketable. We have often been amused to witness the feelings and hear the expressions of competitors for the premiums of this kind of stock at our shows, making themselves appear very ignorant or very selfish, and unless the first premium is awarded them, complaining that great injustice is done, or the committee are not judges. Although this is not the region perhaps for raising stock, particularly beef animals, for profit, still what we do have should be of the right kind—that which is always sought after in the market by first class butchers, easily and readily sold at the highest prices. The ox that will give the greatest weight of "good pieces" according to the whole weight; that is of small bone, straight broad back for rib roast, sirloin, roast and steak, large, full rump—for these are the pieces on which the butcher makes his money, and which give his customers satisfaction—is the animal that with good keeping will always be in good order, generally fat enough

for the shambles, and the cheaper kept. There is another kind of ox, a rawny, coarse, slab-sided animal, which with extra keeping make fat cattle, and they will show large flanks and cod, sure indications of fat; but this kind are bought by butchers who barrel or pack beef, and they answer every purpose, for they fill the barrel fast, can be bought a dollar or two per cwt. less, and when headed up no one can see but that he is buying clear beef or half bone, and it is just as well.

There is still another kind which are all beef, and which are never fat, although by a person unacquainted they would be selected from a drove as the fattest. I refer to a kind known as the Whitten cattle. They are not very numerous, from the fact that they are unprofitable.

As to breeds for fattening purposes, for New England we think our old native cattle are not surpassed, and in our opinion did we take as much pains to improve our own stock, (either cows or oxen,) as we do to import, and take the same care of ours as we do of the imported animals, we could not be beat. The Devons we think well of for oxen. They are hardy and thrive well, cheaply fatted, small boned, which make them desirable for beef, though not as large as our natives. The Durhams are of the right shape and the right breed for a country where grass and grain are abundant, and they can be turned into the one and the other the year round; but for us they require too high feeding, and consequently cost too much; but they are noble animals.

For fattening cattle we do not think there is anything better than good English hay and Indian meal raised on the farm. A few turnips, and a little salt hay occasionally for a relish, will not be thrown away.

JOSEPH NEWELL,
EBENEZER HARRIS,
JOSEPH FAIRFIELD, } COMMITTEE.
OTIS BAILEY,
JESSE SHELDON,

NATIVE OR GRADE MILCH COWS.

There were eight entries under this class of animals. The young native cow presented by David Merritt, Jr., of Salem, is a fine animal, but not possessing, in the opinion of the Committee, those superior qualities or that appearance to entitle her to the first premium, and they therefore award to him the second premium of $8 00.

The cow presented by Joel Hewes of Lynnfield, with a very fine bull calf, dropped on the first day of May last by her side, tells her own story, as expressed by Mr. H. in his statement, but by the rules of the Society she was not entitled to a premium, and the Committee recommend that a gratuity of $3 00 be awarded him for his cow and calf.

The cow belonging to Joseph W. Ropes of Danvers, part Jersey, six years old, was to all appearance a very fine animal, and might, with a full and particular statement of her products and qualities have been entitled to a premium, but in the absence of such a statement the Committee can only give her this passing notice.

ANDREW DODGE,
JOHN STONE, JR.,
JOSEPH CHANDLER,
ELI C. GLINES,
} COMMITTEE.

DAVID MERRITT JR.'S STATEMENT.

I present for premium my cow "Daisy." She is a native, and was four years old on the 16th of last April. She dropped her second and last calf on the 3d of August, and will calve again about the last of May. From the 20th of last May to the present time her feed has been nothing but fair pasturage, except a little of the first crop of English hay at night and morning. Her milk has been measured morning and evening since the 5th of August, and an accurate account has been kept daily, which is annexed. During the first ten days of September it was twice weighed and found to average two pounds per quart, wine measure: and it takes nearly eleven quarts of her milk now to make one pound of butter.

MEASURE AND WEIGHT OF HER MILK FOR THE FIRST TEN DAYS IN SEPTEMBER, 1859.

1859	Quarts.	Pints.	Half Pints.	Pounds.	1859.	Quarts.	Pints.	Half Pints.	Pounds.
Sept. 1	16	1		33	Sept. 7	15	1		31
" 2	16	1		33	" 8	16	1		33
" 3	15	1		31	" 9	16	1		33
" 4	17			34	" 10	14	1	1	29½
" 5	15	1	1	31½					
" 6	16			32		160	1		321

MEASURE AND WEIGHT OF HER MILK FOR THE TIME BETWEEN THE 5TH OF AUG. TO THE 27TH OF SEPT.

1859	Quarts.	Pints	Half Pints.	Pounds.	1859.	Quarts.	Pints.	Half Pints.	Pounds.
Aug. 5	14	1		29	Sept. 2	16	1		33
" 6	11			22	" 3	15			31
" 7	12		1	24½	" 4	17			34
" 8	12		1	24½	" 5	15	1	1	31½
" 9	14			28	" 6	16			32
" 10	12			24	" 7	15	1		31½
" 11	13	1		27	" 8	16	1		33
" 12	13			26	" 9	16	1		33
" 13	13	1		27	" 10	14	1	1	29½
" 14	13			26	" 11	15	1		31
" 15	13			26	" 12	14	1		29
" 16	15			30	" 13	13	1		27
" 17	14	1		29	" 14	13	1	1	27½
" 18	15			30	" 15	15		1	30½
" 19	13	1		27	" 16	15		1	30½
" 20	14			28	" 17	14		1	28½
" 21	13	1		27	" 18	14	1	1	29½
" 22	13	1		27	" 19	17			34
" 23	14			28	" 20	16		1	32½
" 24	14			28	" 21	16		1	32½
" 25	14	1		29	" 22	15	1	1	31½
" 26	16			32	" 23	16	1		33
" 27	15	1		31	" 24	14	1	1	29½
" 28	15	1		31	" 25	14			28
" 29	17			34	" 26	14	1	1	29½
" 30	15			30	" 27	15			30
" 31	16			32					
Sept. 1	16	1		33		796			1592

Daily average from Aug. 5th to Sept. 27th, 29 1-2 pounds.
Daily average from Aug. 5th to Sept. 27th, 14 40-54 quarts.

This cow came from a favorite cow, and was raised by E. S. Parker on his farm in Groveland. She dropped her first calf December 21st, 1857, at the age of two years and eight months. I bought her January 12th, 1858, and between then and the 13th of January, 1859, she gave 2615 quarts of milk, beer measure, or 7027 pounds, at 2 pounds and 11 ounces per quart, or 9 qts. 1 pint and 1 gill per day, wine measure, or 19 1-4 lbs. per day

for the year. In June, July, August and September her feed was nothing but common pasturing. Her feed for the other eight months of the year was four quarts shorts, fourteen pounds carrots, and as much second crop English hay as she wanted, usually about twenty-two pounds per day. The whole cost of keeping her for the year, including 75 cents per week for pasturing, 25 cents per week for driving, ($17.50,) $15.00 per ton for hay, and $9.00 per ton for carrots, was $71.46.

Salem, September 28th, 1859.

MILCH COWS OF FOREIGN BREED.

The Committee report that no premium has been awarded, and that but one entry for premium was made—that of Wm. D. Pickman of Beverly. They regret that so good a looking Jersey should have been unaccompanied with a statement of her milking qualities, thus excluding her owner from receiving a premium. The Committee also notice for exhibition only, four Jersey cows from Richard S. Rogers of South Danvers, and three from R. S. Fay of Lynn. Those of Mr. Rogers consisted of one full blood imported cow, and three grade cows, all very fine animals, and like all animals of that class not giving a large quantity of milk at any one time, but giving a fair quantity, of a superior quality, during the entire year. As an instance of the quality for butter, it was stated that from the milk of the imported cow for one week, there was made in January last ten and one half lbs. of good butter, the feed having been hay and carrots.

Mr. Fay's cows were certainly fine looking animals, and here the Committee are happy to report that they have received a very full statement with regard to each cow, showing the amount of milk given by each in the first ten days of June and September, both in quarts and pounds, measured and weighed morning and evening; also the amount of cream after twelve hours standing, tested by the lactometer. Mr. Fay's statement goes far to show the comparative merits of the Jersey breed, but the Committee wish not to quote from it, but would rather request as it

is drawn up with much brevity and precision, that it be printed in full in connection with this report.

Your Committee were surprised that with fifty dollars at their disposal there should be no animal to whom they could award a premium. The question arises, why is this? Is it because the owners of foreign breeds shun a comparison of them with the native stock? Mr. Fay's statement shows that this cannot be so of the Jerseys; but where are the Durhams, noted not only for their large size, but being claimed as larger milkers than any other breed? Where the Devons, of whom it is said that four pounds of their milk will make a pound of butter? The Ayrshire—where are they? Are there not some on the farm in Topsfield, bought at a great price? Perhaps they were too valuable, or they were kept back from motives of pure generosity, lest they should put to blush the owners of native stock who might offer their animals for premium or exhibition! Whatever may be the cause, we hope it may never again occur. If there is any superior merit in one foreign breed over another, or over the native stock—(for the farmers are an incredulous class, and must see before they believe)—show it by the animals themselves, and by accurate statements, such as the one we have received to-day.

FRANCIS DODGE,
NATHAN W. BROWN,
MARK H. DAVIS,
GEORGE W. WARNER,
JOSHUA N. KENT,
} COMMITTEE.

RICHARD S. FAY'S STATEMENT.

I send *for exhibition only*, not wishing to compete for a premium, three Jersey cows, three yearlings and three calves, all pure breed, to which I beg to call your attention. My farm is as little adapted for rearing stock and for the production of milk as any one that can be found in the county, the soil being gravelly and hungry, and the pastures, from half a century of neglect, entirely overrun with bushes and wood-wax. It seemed to me that land of this description afforded a favorable opportunity for testing stock of various kinds as to hardiness and constitution, if for nothing else, and these animals which I have sent to

the exhibition are the result of one of the experiments which I have been making. I do not mean to boast of having good cows living upon nothing, for I should feel ashamed of having any animal which was not as well treated as the nature of the case will admit. I only mean to say that the character of my soil will not admit of very good treatment, and that no animal can do as well upon it as upon land of a better character. I have treated these animals precisely as I have treated others of my herd, so as to be able to compare the results, and I have for this purpose selected the best animals of our native stock that skill could raise or that money could purchase. All this should be borne in mind in looking at the dairy product of the animals. I must also ask you to take my assertion, so far as comparative excellence goes, that these cows are ahead of the lot in all respects. They are, (yearlings and calves included,) in better condition than any others of native growth upon my farm treated in the same manner. The average yield of milk as I have said is greater, and the quality vastly superior.

There is one advantage which this breed possesses, from being constant milkers. For example: No. 1 will calve in about twelve days. She is five years old and has never been dry since her first calf. She is not at any time a large milker, but her milk is of the richest character, and will average about eight quarts per day throughout the year. On a good soil she would probably add a third to this result. The other two are equally good in all respects with a larger average of milk through the year. The test by the lactometer as to the quality of the milk I have already given at the foot of the milk table. They are both with their third calf, each being a year younger than No. 1.

I am accustomed to make records of milk by the quart, as easier from habit, but the milk of these cows has been weighed from time to time, and it has varied so little from two lbs. three ounces to the quart, sometimes exceeding and sometimes falling off from that standard in a degree hardly noticeable, that I have contented myself by simply putting the total in lbs.

I send these animals as the highest specimens I have of the class, being of the best stock that has ever been brought to this country, in order to enable you to compare them with other breeds which I hope will be equally well represented.

Since writing the above I have concluded not to send the yearlings on account of the trouble of driving so much young stock. I am aware that many will read the statement as to the richness of the milk which these cows give with incredulity; to such however, I can only say that they are open to the trial and inspection of any one, and that the cows have had only pasture feed at the time of trial, with green corn fodder at night.

MILK ACCOUNT.

JERSEY COWS.

No. 1—"Loolv."

	Morning. Qts.	Evening. Qts.	Total. Qts.	Total. Lbs.
June 1	3	5	8	
" 2	3¼	4¾	8	
" 3	3¼	4¾	8	
" 4	3¼	4¼	7½	
" 5	3¾	4¼	8	
" 6	3¾	4¼	8	
" 7	3¼	5	8¼	
" 8	3	4¾	7¾	
" 9	3¾	4¾	8½	
" 10	3¼	4½	7¾	
		Qts.	80	160 Lbs.
Sept. 1	2¾	3¼	6	
" 2	2¾	3¼	6	
" 3	2¾	3¼	6¼	
" 4	2¾	3¾	6½	
" 5	2½	3¾	6¼	
" 6	3	2¾	5¾	
" 7	3¼	3½	6¾	
" 8	2¾	3¾	6½	
" 9	2¾	3½	5¾	
" 10	3	3¼	6¼	
		Qts.	61½	138 Lbs.

1 11-20 in 7 inches

Calved Oct 24th, 1858; will calve again Oct. 12. By the Lactometer September 27th, 7 parts of milk in 12 hours, producing 1 11-20 parts of cream.

No. 2—"Rosa."

	Morning. Qts.	Evening. Qts.	Total. Qts.	Total. Lbs.
June 1	6	7½	13½	
" 2	6½	6½	13	
" 3	6¼	7	13¼	
" 4	6¼	7	13¼	
" 5	5¾	6½	12¼	
" 6	5¾	8¼	14¼	
" 7	4½	8¼	12¾	
" 8	6	7½	13½	
" 9	6¾	7½	14¼	
" 10	6¼	7	13¼	
		Qts.	133½	208 Lbs.
Sept. 1	4½	4¼	8¾	
" 2	4	4¾	8¾	
" 3	4¼	4¾	9	
" 4	4¾	5¼	10¼	
" 5	3¾	4¼	8	
" 6	5¼	4¾	10	
" 7	4¼	4¼	8½	
" 8	4	4	8	
" 9	3½	4	7½	
" 10	3	4	7	
		Qts.	85¾	194 Lbs.

1 12-20 in 7 inches.

Calved April 9th, 1859; will calve again March 2. September 27th, 7 parts of milk produced 1 12-20 parts of cream.

No. 3—"Gentle."

	Morning. Qts.	Evening. Qts.	Total. Qts.	Total. Lbs.
June 1	6	6	12	
" 2	6¼	7	13¼	
" 3	6½	6	12½	
" 4	6	5½	11½	
" 5	5	7	12	
" 6	4½	7¾	12¼	
" 7	5½	7½	13	
" 8	5	6¼	11¼	
" 9	5¼	7¼	12½	
" 10	5	6¾	11¾	
		Qts.	122	274 Lbs.
Sept. 1	4	4¼	8¼	
" 2	4¼	4	8¼	
" 3	3¾	4½	8¼	
" 4	4¼	4½	8¾	
" 5	3¾	5	8¾	
" 6	3¾	5	8¾	
" 7	4¼	4¼	8½	
" 8	4½	3¾	8¼	
" 9	4	3¾	7¾	
" 10	4½	4¼	8¾	
		Qts.	84¼	191 Lbs.

1 10-20 in 7 inches.

Calved May 15, 1859; will calve again March 11. Sept. 27 7 parts of milk produced 1 10-20 parts of cream.

Lynmere, Sept. 27, 1859.

HEIFERS.

There was only one entry of three year old heifers, which was by Patrick Tracy of Salem, and to him we award the first premium of $7 00

Of two years old heifers there were five entries.

Isaac Porter, Wenham, 1st premium,	$5 00
H. E. Pearson, Newbury, 2d premium,	4 00
George Newhall, Danvers, 3d premium,	3 00

There were fourteen yearling heifers.

George Cogswell, Bradford, 1st premium,	4 00
Benjamin P. Ware, Marblehead, 2d premium,	3 00
Paul Pearson, Newbury, 3d premium,	2 00

Twelve calves were entered.

James Damon, Ipswich, 1st premium,	5 00
E. G. Berry, Danvers, 2d premium,	3 00

The calves presented by R. S. Rogers of South Danvers, did not come within the ages prescribed by the rules of the Society.

JOSEPH S. CABOT,
DEAN HOLT,
A. W. SMITH,
WARREN ORDWAY, } COMMITTEE.

NATIVE OR GRADE BULLS.

The Committee on native or grade Bulls report that thirteen were entered, but only twelve were offered for examination, most of which were good specimens of stock, and many of a superior order. After a careful examination they have unanimously awarded to

Samuel Carlton, Haverhill, 1st premium,	15 00
F. S. Lovett, Beverly, 2d premium,	10 00
Francis Dodge, Danvers, 3d premium,	5 00

DAVID S. CALDWELL,
D. G. TODD,
JOHN WHITTREDGE,
ENOCH WOOD,
AMOS POOR, JR., } COMMITTEE.

BULLS OF FOREIGN BREED.

The Committee on Bulls of foreign breed report that they award for Jersey Bulls to

Richard S. Rogers, South Danvers, the 1st premium,	10 00

For Ayrshire Bulls to

William Sutton, South Danvers, 1st premium,	10 00

For Devon Bulls to

Israel Herrick, Boxford, 1st premium,	10 00

Two Bulls were entered as Short Horns and one as Hereford, but the Committee had no satisfactory evidence of their purity of blood, and the appearance of the animals themselves most positively pronounced them to be grades. The Committee therefore were precluded from recommending a premium for such bulls—purity of blood being the condition upon which these premiums are offered.

THOMAS E. PAYSON,
JOHN KEELY,
HIRAM L. NEWHALL, } COMMITTEE.

WORKING OXEN.

The Committee on Working Oxen award to—

Jacob Farnham, North Andover, 1st premium,	10 00
Joseph Kittredge, North Andover, 2d premium,	8 00
Joseph K. Farley, Boxford, 3d premium,	6 00
Richard S. Bray, Newbury, 4th premium,	4 00

The Committee would recommend to the favorable notice of the Society a yoke of oxen owned and driven by John B. Jenkins of Andover, for their superior training and work, but not coming within the rules they cannot award to them any premium.

JAMES NASON,
PAUL D. PATCH,
CALEB CHILDS,
SULLIVAN BROWN,
AARON KNOWLTON,
WILLIAM LITTLE, } COMMITTEE.

STEERS.

The Committee on Steers make the following report:—

There were only five entries, and for three years old they award to—

Ephraim F. Cole, Boxford, 1st premium, 6 00

For two year olds, to—

Samuel Longfellow, Newbury, 1st premium, 5 00

Benj. K. Atwood. Topsfield, yearling steers, 1st premium, 3 00

I. OSGOOD LORING,
GEORGE B. DODGE,
ISAAC W. ALLEN,
FRANKLIN ALLEY,
SETH KIMBALL,
} COMMITTEE.

STALLIONS.

The Committee report that there was no animal under the class of stallions of four years old and upwards that in their judgment was worthy of a premium.

They award for stallions of four years old and under, to—

A. S. Pettigrew, Newburyport, 1st premium, $7 00

Walter H. Whittier, Bradford, 2d premium, 5 00

GEORGE M. TEELE,
WM. COGSWELL,
R. TENNEY,
} COMMITTEE.

BROOD MARES.

The Committee to whom was assigned the duty of adjudging the premiums for Brood Mares, have given that attention in discharge of their appointment that the time afforded them for examination permitted, and report that the whole number of entries was twenty-three, of which number twenty-one were present and examined.

The Committee would remark that the number of entries was

very large, and so far as their information reaches, larger than at any previous exhibition of this Society. In consideration of this fact great care and discrimination were required in arriving at a proper selection of those animals meriting the premiums offered. They have been most anxious to choose such [as were in all respects sound, not too aged, not vicious, and, so far as they could judge, free from hereditary taint; and to avoid, in accordance with the requirements of the Society, all those that seemed to possess defects which, in their estimation, might be transmitted to their offspring.

With these views the Committee have much pleasure in stating that their decision was unanimous in awarding the following premiums :—

To Simeon Bardwell, Andover, 1st premium,	10 00
Joseph S. Leavitt, Salem, 2d premium,	8 00
Abiel Wilson, North Andover, 3d premium,	6 00

RICHARD S. ROGERS,
ROBERT FARLEY, JR.,
JACOB FARNUM, } COMMITTEE.

FARM AND DRAFT HORSES.

The Committee report that there were seven horses for farm work and draft entered, and that five only were on the ground. They award the premiums as follows:—

To Horace Ware, Marblehead, 1st premium,	10 00
Daniel Richards, Danvers, 2d premium	8 00
David Knowlton, Essex, 3d premium,	6 00

LAMBERT MAYNARD
JOHN KNIGHT JR.
J. LONGFELLOW, } COMMITTEE.

COLTS.

The Committee on Colts make the following report :—

They award to—

William Peters, North Andover, for his 4 years old colt, 1st premium,	7 00
G. M. Teel, South Danvers, for do, 2d premium,	5 00
Eben S. Poor, South Danvers, for 3 years old, 1st prem.,	6 00
James Marsh, South Danvers, for 3 years old, 2d premium,	4 00
Lambert Maynard, Bradford, for 2 years old, 1st premium,	5 00
George Dane, Hamilton, for do, 2d premium,	3 00
Ira P. Pope, Danvers, for his yearling, 1st premium,	4 00
George Cogswell, Bradford, for his yearling, 2d premium,	2 00

R. A. MERRIAM, F. R. ALLEN, } COMMITTEE.

SWINE.

A great change seems to have taken place in regard to raising pork. Formerly almost every farmer raised more or less for the market. Large quantities of potatoes were raised, (which grew almost spontaneously,) and cooked over the kitchen fire in the long winter evenings, or early in the morning, mashed up and mixed with meal, which made a palatable, and as was then considered, a profitable fare. The time however soon arrived when the old fashioned fire place was closed up, and the cast-iron fire frame or stove took its place; consequently kettles were set in some convenient place to cook the potatoes. Now the potato crop has failed and become unprofitable to feed to swine, (except the refuse ones,) and consequently the grain crop must be almost wholly depended on to make pork for the market. Salt pork is now brought in large quantities from the West to supply our market, and in cool weather fresh pork, and also live hogs are brought and slaughtered in the vicinity of our large markets to supply them with fresh provision. The ques-

tion therefore now arises whether pork can be profitably raised. This depends mostly on the price of grain and pork, or the proportion they bear to each other. With a good breed of swine, with proper care and attention, pork can be raised for ten cents per pound when corn is one dollar per bushel, or that is about a fair proportion, allowing the manure for the labor. Much care should be taken not only to select a good breed, but the animals should have comfortable accommodations and regular feeding, as they will then be more quiet; and the more quiet they are kept, the better they will thrive.

The exhibition of swine was not so large as in some former years, but there were some very good ones.

A fine Chester county boar, sixteen month sold, was exhibited by W. H. Foster of Beverly.

Also a fine boar, six months old, a cross of the Chester and Suffolk, was exhibited by Charles H. Whipple of South Danvers.

Another boar, five months old, of the Chester county breed, was exhibited by William Foster of Andover.

After some consultation the Committee concluded to recommend the first premium of $5 to Charles H. Whipple of South Danvers; and the second premium of $3 to W. H. Foster of Beverly, as both of their bores were fine specimens.

A fine Chester county breeding sow, with a litter of pigs, was also exhibited by W. H. Foster of Beverly.

Robert G. Buxton of South Danvers exhibited a breeding sow with 10 pigs, which was said to be very prolific and successful in raising her pigs, which were of superior quality.

William Bomer of Danvers exhibited a sow with seven pigs. The sow had one peculiar feature like her ancestors; her hoofs were whole and not split like other swine, which under the Levitical law would have been pronounced unclean.

Allen Berry of Middleton exhibited a breeding sow with a progeny of nine pigs. She was remarkable for her age and her prolific qualities. She has produced since August 28th, 1853, thirteen litters of pigs, amounting in all to one hundred and seventy-six, fifty two of which died in infancy; the remainder, one hundred twenty-five, lived to be weaned, and probably many of them to mature or old age. The mother appeared in good

health, and to human appearance may yet live to bless the community with her offspring.

The Committee would recommend the first premium of $5 00, to be awarded to W. H. Foster of Beverly; and the second premium of $3 00, to Allen Berry of Middleton, for their breeding sows.

The Committee would also recommend the first premium of $5 00, to Sidney C. Bancroft of Danvers, for his four Suffolk and Essex pigs.

After the report was made there came to the notice of some of the Committee a sow and four pigs, six months old, exhibited by E. G. Berry of Danvers. They were good specimens, but as the report was made they concluded to make no change.

JOSEPH HOW,
JAMES FLINT,
JOHN L. HUBBARD,
J. P. GOULD,
} COMMITTEE.

SHEEP.

The Committee report that there were but two entries, each of which was of ten sheep and one buck. They award to—

Thomas G. Ordway, West Newbury, for the best flock of sheep, premium,	10 00
Jacob Farnham, North Andover, for the best buck,	5 00

JOSEPH KITTREDGE, CHAIRMAN.

POULTRY.

John W. Osgood, Danvers, coop of Ducks,	1 50
Benjamin Millet, Danvers, coop of Bolton Greys,	1 00
M. C. Adams, Danvers, coop of White Shanghai,	75
Daniel Buxton, South Danvers, coop of Brama Pootra,	4 00

Thomas H. Cutter, Newburyport, coop of Black Bantams,	1 00
" " " " coop of Fancy Pigeons,	1 00
A. L. Pierson, South Danvers, coop of Brama Pootra,	1 00
William Sutton, South Danvers, coop of White Dorkings,	1 00
W. Flagg, Andover, White Poland,	1 50
G. L. Streeter, Salem, coop of Speckled Dorkings,	1 50
" " coop of Gold Laced Bantams,	50
W. H. Foster, Beverly, Black Spanish,	1 50
" " Ducks,	75
George Buxton, South Danvers, Brama Pootra,	75
Charles E. Ives, Salem, White Dorkings,	1 00
D. W. Goldthwaite, Danvers, Peacocks,	50

SUMNER SOUTHWICK, CHAIRMAN.

FARM IMPLEMENTS.

The Committee on farm implements report that they have examined the several machines and farm implements on exhibition, and recommend a gratuity of two dollars to Washington Burnham for his improved ox yoke, the improvement consisting in a very simple arrangement, by which the ring can be shifted towards the nigh or off ox as the strength of either may require.

The Committee award to Luther Thayer a gratuity of two dollars for his improved green feed cutter.

To William Wells a gratuity of five dollars for his patent corn sheller, it being in the opinion of the Committee the most perfect machine of the kind now in use.

To Horace Ware a gratuity of five dollars for his horse hoeing machine ; and six dollars being the balance of the appropriation of twenty dollars in this department, to S. A. Merrill for the Buckeye mowing machine.

The Committee regret that their limited appropriation compelled them to pass over several machines of undoubted merit.

The improvements in Ketchum's and Manny's mowing machines ought to entitle them to more than a passing notice. Much

has already been done towards perfecting them, but something still remains to be done to make them perfect machines.

Machinery for the cultivation of the soil is of the greatest importance to the farmer, as by its use he converts his horse or his ox into obedient servants, who, when well fed, never refuse to labor, be it early or late, or strike for higher wages when labor is scarce.

There is, we regret to say, one great drawback to the general introduction of farm machines; we mean their cost. The price of many of the patented articles is so high as almost to exclude the use of them to owners of small farms; the price of the corn sheller exhibited to-day is $15. With this machine a child six years old could shell by way of amusement all the corn consumed by any farmer in the county of Essex in a year. It is a very simple machine, and ought to be sold for not more than two-thirds its present price. So of the horse hoeing machine exhibited by Mr. Ware, a most useful labor-saving machine, and one which would be worthy the attention of every farmer, provided the manufacturer would offer it at a reasonable price.

E. S. WILLIAMS, CHAIRMAN.

GRAIN CROPS.

The Committee, to whom were submitted the several statements of grain crops presented for premium, recommend that the premiums of $8,00 each be awarded as follows:

To Paul Pearson, of Newbury, for his crop of Wheat, at the rate of 35 bushels to the acre. This we think a very good crop, and well worthy of the award.

To Samuel A. Merrill, of Salem, for his crop of Rye, 44 bushels to the acre. This we consider an extraordinary good crop. Not having had any opportunity to view these crops in the field, or the grain when harvested, we must let the statements of the gentlemen named speak for themselves.

There was a very good crop of wheat entered by Joshua N.

Foss, of Newbury, but as it was raised on only one half an acre, it did not come within the rules of the Society. His statement is herewith submitted.

For the Committee.

JOHN W. PROCTOR.

PAUL PEARSON'S STATEMENT.

I herewith enter a crop of Wheat, which I raised this year. The quantity of grain sown was 5 pecks; the quantity of wheat raised was 31 1-2 bushels, weighing 60 3-4 lbs. to the bushel. The breadth of land sown was 142 1-2 rods. The land was in a low state of cultivation, being old field land worth about 50 dollars per acre; planted two years with corn and potatoes manured in the hill; the third year about three cords of manure ploughed in—common yard manure. The ground was ploughed and harrowed, then sown and harvested. The expense of ploughing and sowing was 3 dollars; reaping 4 dollars; threshing 6 dollars. Sown April 7th; harvested August 8th.

Newbury, October 24th, 1859.

JOSHUA N. FOSS'S STATEMENT.

Having raised a fine crop of wheat of about one-half acre, I thought best to let you know about it, though I am in doubt whether you are empowered to award a premium on such a crop or not.

Last spring I sent to Boston and got one bushel of China Sea wheat and sowed it over half an acre, and have raised about 20 bushels of good wheat, which you will see at the Show. We have not threshed the whole yet, but think there is no doubt there will be the quantity stated. The land is a sandy loam with clay sub-soil, and was planted last year with corn, and manured with about 20 loads to the acre. Last spring put on 4 loads of manure and ploughed; sowed when the harrow struck the frost.

Rowley, Sept. 27, 1859.

SAMUEL A. MERRILL'S STATEMENT.

I submit the following statement of a crop of rye, which I enter for premium. The field contained 1 1-4 acres, from which I raised and threshed 55 bushels of first quality rye. The field was in potatoes last year, and was manured with 6 cords of good manure to the acre. It was ploughed in October of last year, and sowed with 1 1-2 bushels of seed per acre. The crop was as above stated, and worth $1.00 per bushel. The straw amounted to 3 1-2 tons and was worth 60 cents per 100 lbs.

Cost of ploughing - - - -	$4.00	per acre.
" harrowing - - - -	2.00	"
" sowing - - - -	.50	"
" reaping - - - -	4.00	"
" threshing - - - -	.10	per bushel.

Salem, Nov. 14, 1859.

ROOT CROPS.

The Committee on Root Crops report seven entries for premium, of which returns have been made as follows, viz :—Horace Ware of Marblehead, carrots; C. P. Jaqueth of North Andover, potatoes; James Damon of Ipswich, carrots; Willard Howe of Danvers, parsnips; Hanson Ordway of West Newbury, onions; Franklin Alley of Marblehead, onions.

The Committee award to—

Horace Ware, Marblehead, for his crop of carrots, the premium of	$8 00
C. P. Jaqueth, North Andover, for his crop of potatoes,	8 00
Willard Howe, Danvers, for his crop of parsnips,	8 00
Franklin Alley, Marblehead, for his crop of onions,	8 00

LEWIS ALLEN, AARON LOW, } COMMITTEE.

HORACE WARE'S STATEMENT.

The field of carrots that I offer for your consideration con-

tains two and a half acres, one half acre of which produced 30,-852 lbs., as per bills. The kinds raised were the Horn and Orange. The Horn produced the best. On another part of the field I had the Horn and Orange mixed in the seed, which produced better than either of the others. The reason of my not selecting my lot from them was that they were not so thick and I thought there would not be so good a yield, but in digging them I found that there were about two tons more on a half acre than of the Horn with less manure and culture, but I did not sell enough to get at the weight of the second half acre. On the land sown with the mixed seed I spread about eight cords to the acre of compost manure, half of which was kelp ploughed once five inches deep, harrowed and bushed; the after culture the same as the half acre that I offer for premium, which is as follows:—

The land was in potatoes the two years preceding and well manured; for the present crop 2 1-2 cords of muscle mud were spread and ploughed in 8 inches deep and harrowed, then spread 3 1-2 cords of compost manure, same as above, and ploughed in 7 or 8 inches, harrowed and bushed. The seed was sown on the 28th of May in rows 14 inches apart, the plants thinned to between 1 and 2 inches apart, hoed 4 times and weeded 3 times.

Expense of crop:—

Ploughing, harrowing and bushing,	$4 00
Seed and sowing,	1 50
Weeding and hoeing,	6 00
2 1-2 cords of mud at $4 00 per cord,	10 00
3 1-2 cords of manure at $5 00 per cord,	17 50
Harvesting,	10 00
Marketing,	10 00
	$59 00
Credit by 7,300 lbs. carrots at 37 1-2 cents per 100 lbs.	27 37
" " 23,552 lbs. carrots at 45 cents per 100 lbs.,	105 98
	$133 35
	59 00
Balance,	$74 35

Marblehead, November 14, 1859.

C. P. JAQUETH'S STATEMENT.

I enter for premium a crop of potatoes raised on 87 rods of land, from which I harvested 136 37-60 bushels, sixty lbs. to the bushel, or about 251 1-4 bushels to the acre, of the Danvers reds.

About three-fifths was the previous year planted with corn and potatoes, with one shovelful of compost manure in the hill, and the remaining two-fifths was planted with potatoes the 24th of June after the hay crop was taken off—which was very light —with plaster in the hill, at the rate of 2200 lbs. to the acre.

They were affected by disease, and consequently were almost a total failure.

On the ground on which the plaster was applied the previous year the potatoes were much the best.

I spread 2 1-2 cords of compost manure from barn cellar after ploughing, harrowed once, furrowed lightly, four feet apart, cut and dropped six bushels of small sized potatoes, from 1 1-2 to 2 feet apart, covered with horse and plough by turning two furrows together.

My potatoes were large and smooth, and of the 136 37-60 bushels harvested, not over six per cent. were unfit for market.

I planted May 10th, and harvested during the month of Sept.

The cost of crop was as follows :—

Ploughing 2 1-2 hours, 2 men and 2 horses,	1 25
Carting and spreading 2 1-2 cords manure,	1 25
Furrowing, dropping and covering,	1 25
Cultivating twice, ploughing once, hoeing twice,	3 25
Harvesting,	6 00
Six bushels small sized potatoes at 40 cents per bushel,	2 40
2 1-2 cords compost manure at $5 00 per cord,	12 50
Total cost of crop,	$27 90

The 136 37-60 bushels of potatoes were sold in the Lawrence market at an average of 52 1-2 cents per bushel.

North Andover, October 27th, 1859.

WILLARD HOWE'S STATEMENT.

The half acre of land on which the parsnips were grown is a

light sandy loam, and has been previously used, (18 or 20 years) for onions, except last year, (1858.) It was sown one half to carrots, the other half to onions.

The onions failed; it was then set with cabbage. The yield of parsnips on the half where cabbages grew was 17 bushels, the land and manure being equal.

The manure used was composed of equal parts of stable manure, night-soil and spent tan; well mixed and fermented manure spread and ploughed in and fitted as for carrots or onions.

Seed sown 17th of May with a machine; the rows 17 inches apart, and the plants thinned to 3 inches.

Harvested by ploughing two furrows away from the row with the side-hill plough, the last furrow deep and close to the row with two horses—then they are dug easily with spade or shovel. The labor of horses offset against ploughing.

In all 313 bushels of 45 lbs. each, 299 of nearly even size, fit for family use. They will be for sale in February and March, and we hope to obtain the same price of last year—$1.50 per bbl.

In calculating expense of crop I have charged $1 25 for men, $1 50 for horse per day, and what it cost for boys' labor.

Expense of crop:—

Hauling manure, and spreading and ploughing,	$5 25
Hoeing and weeding,	5 75
4 cords manure at $7 per cord,	28 00
Land rent,	6 00
1 1-4 lbs. of seed,	1 25
Harvesting, 8 days,	10 00
	$56 25
Credit by 100 barrels at $1 50 per barrel,	$150 00
14 bushels at 20 cents per bushel,	2 80
	152 80
	56 25
Nett,	$96 55

Danvers, November 14th, 1859.

FRANKLIN ALLEY'S STATEMENT.

The piece of onions which I offer to your notice contains three-

fourths of an acre, measured by Horace Ware, on which I put eight cords of manure, half horse manure and half kelp, well mixed together, and evenly spread on the land and ploughed in six inches deep and harrowed, ploughed the second time and raked by hand. The seed was sown in rows fifteen inches apart, with two pounds of seed on the 21st of April, and the ground kept clear of weeds. The land is of a dark loam with under drain on part of it, and has produced onions the last four or five years. The yield of onions the present year, as weighed, was 25,960 lbs, which sold at 75 cents per bushel delivered in Salem. The cost of cultivation by estimation is as follows:—

Ploughing,	$3 00
Harvesting and raking,	3 00
Sowing,	1 00
Seed,	5 00
8 cords of manure at $5 per cord,	40 00
Weeding,	25 00
Cost of cultivation,	$77 00
25,960 pounds at 50 pounds to the bushel,	519 1-5 bushels.

Marblehead, November 9th, 1859.

VEGETABLES.

The award of premiums under this head having gone to press before the Chairman had time to prepare his report in full, it is here inserted.

POTATOES.

The present season has been favorable for the growth of Potatoes, and the quality of them is better than it has been for several years. We have noticed that the vines were full of the green balls or apples. Some think that this is an indication that the potato is regaining its former healthy state. Although the rot has not been so extensive as in some former years, yet in some places they rotted badly after we thought they were

past danger. Some have told us that their experience this year has confirmed them in the belief that early planting was the best security against the rot; yet, we have known some fields planted in June, which have not rotted so badly as the same kind that were planted early. Thus we see that neither early nor late planting is an infallible remedy against the rot. The Davis seedling, which has in years past been sound while other kinds have rotted, has this year rotted badly in some places.

We noticed some fine seedling potatoes exhibited by Dudley Bradstreet, of Topsfield. These were very large for the first year from the seed, and promised to be a productive kind.

Some large potatoes were exhibited by A. Griffin, A. J. Hubbard and F. Russell, apparently all of the same kind, yet we found them labelled "California," "Jenny Lind," and "Canterbury" seedlings. Of the origin of this variety we know nothing, but from its appearance we should think it was a mixture of the once famous Rohan and the Long Red.

We often hear the question asked, why the farmers of this county do not raise more potatoes, as the price has been so high for several years. The uncertainty attending them, and the liability to rot after they are put in the cellar, deters many from raising them; and they prefer to grow a more certain crop.

SQUASHES.

The show of Squashes was good. J. W. Trask, of Beverly, exhibited 25, all upon one vine, nearly alike and well ripened.

Mr. Gregory exhibited some Hubbard squashes that were grown in 1858, in a good state of preservation, showing the good keeping qualities of this squash. The hard shell upon this kind protects it from injury in transportation. This is properly a winter squash, ripening after the autumnal Marrow. It is thought by some not to yield so much as the Marrow; others think they get as many pounds of it for market as of the Marrow.

The Committee do not think very highly of large squashes in general; but when we see such a monster as that exhibited by Mr. Porter, we feel as if we should like to be so fortunate as to raise one just a pound larger. When we contemplate the growth of such a vegetable as that, and think that all the sap required

to form that squash of 164 lbs. has passed through the small stem in a few weeks, how rapidly it must have flowed, and what a wonderful exhibition of the power of nature does it give us! We think this extraordinary growth was owing not so much to any special manuring this year, as to the deep and thorough culture in years past and various substances that had been put upon the soil in years past, furnishing it with all the ingredients necessary for so large a production.

CARROTS.

John W. Osgood and Otis Mudge showed some fine specimens of Carrots. This root is more extensively raised in Danvers than in any other part of the State, and there is an increasing demand for it. They have sold this year for $7.00 per ton in the field, and not enough grown to supply the demand. From enquiries of different individuals as to the amount per acre grown, we find that from ten to forty tons have been raised: we should think that fifteen tons would be the average. This is thought to be a good crop to prepare the land for the following crop. From our experience we think they exhaust the land of the particular elements which the grass crop needs: we do not get so good a crop of hay after carrots as we do after corn.

ONIONS.

Some very large Onions were exhibited by different individuals: those by Henry Bushby and Jacob P. Goodale, of South Danvers, weighed over a pound each. The maggot, which has injured this crop for several years, still continues its work of destruction. We know of no remedy for this insect. Our hope for the future is founded upon the general law which governs other destructive insects: the canker-worm and caterpillar will be very destructive for a few years, and then disappear for a time. The grasshopper and the weavel are much more destructive some seasons than others, and we think this will be the case with the onion maggot.

CORN.

Some good King Phillip Corn was exhibited by Robert G. Buxton, of South Danvers, which was well ripened. Most of

the corn shown was good for this season, but was not thoroughly ripened. We think this has been the poorest season for corn in this county since 1836. We have not had those six weeks of hot nights and sultry days which we expect in dog days. Burns's famous "John Barleycorn" was not treated much worse than poor Johnny Indian has been this year: first he was drowned, then frozen and thawed, next dried, afterwards blown down, when Jack Frost seized him so hard that he turned pale and withered in his grasp.

WHEAT.

Several parcels of Wheat were shown: that by Amos Putnam, of South Danvers, was very good.

WM. R. PUTNAM, Chairman.

UNDERDRAINING.

For the best conducted experiment in underdraining land, regard being had to the variety of soil, subsoil and other local circumstances, premiums to the amount of twenty-five dollars are offered by the Society.

Your Committee have found much satisfaction and instruction in their enquiries and observations on this subject. Although very few entries have been made for the premiums offered—all those who have experimented feeling themselves to be learners, rather than teachers of the art of underdraining—still, in addition to viewing what has been done, we have received statements from several of our best farmers—all of which are annexed, that will be found highly useful, as guides in experiments of this character.

Among these, there is no one that covers so large a space as that of George B. Loring, of Salem, who, having abundant leisure and skill in the use of the pen, will best describe his own works. If we do not mistake, it will be in his power to add greatly to his very valuable farm, by operations in underdraining.

Our attention has been called by James Stevens, of Andover, to draining operations on about two acres; which, if he does

not mistake, have been more than doubled in value by his drains. Mr. Stevens's statement is distinct and clear, and describes a model performance, for the instruction of those who would lay drains of this description. The foregoing experiments were made on what may be considered flat, wet land.

Some of a different character were presented to our notice, on the ancestral Putnam farm in Danvers, by William R. Putnam. Mr. Putnam is a good farmer, carefully understanding what he does. We have confidence to believe that he will find his reward in his experiments well begun, and in due time will be able to instruct his brother farmers which of the several modes of draining (for he has tried them all) is best to be adopted.

We have been favored with statements of experiments, judiciously begun, in Rowley, by several enterprising cultivators, which are described in their statements hereunto annexed. We also annex a statement of drainage by Mr. Allen, of South Danvers. We had expected to receive statements from Messrs. Alley and Ware, of Marblehead, but they have not come to hand.

We have been instructed by suggestions made by Ex-President Fay, who has had experience in costly experiments in draining stagnant swamps; not so much for the value of the land drained, as for the benefit of the adjoining estates, and the general purity of the air around.

It is not strange, when experiments are found to have cost more than they are worth, that experimenters are slow in their commendation of such experiments. All agree that drains, judiciously laid and kept in good order, improve the land and greatly improve their products.

In view of all we have seen, we are of the opinion that the experiments of Messrs. Loring, Stevens, and Putnam, have been "best conducted," and recommend that the premiums be awarded accordingly.

To George B. Loring, of Salem, 1st premium,	$15 00
To James Stevens, of N. Andover, 2d premium,	10 00
To William R. Putnam, of Danvers, a gratuity,	5 00

JOHN W. PROCTOR, Chairman.

GEORGE B. LORING'S STATEMENT.

I enter for premium five and one-half acres of land, being one of the lots which I have endeavored to improve by thorough drainage. The land is nearly level, and in addition to the water falling upon it in the form of rain and snow, it receives the drainage of a considerable extent of hill-side and slope, by which it is surrounded. The subsoil is a stiff, tenacious clay, very retentive of water, extending to the entire depth of the ditches—how much further I cannot say—without any strata of sand or gravel. The soil lying above this is a rich dark loam, from one foot to eighteen inches in depth.

The field had been thoroughly and carefully cultivated, for many years previous to coming into my possession, by some of the best farmers in our county. It was always a difficult piece of land to till, owing to the surface water, and to its hardness in a dry season, and its coldness in a wet one. Some form of drainage had always been found necessary for its cultivation; and through its entire length ran a deep, and wide, open ditch, on each side of which the land was laid out in beds about forty feet wide, raised in the middle as high as the plough could raise it, and divided by deep dead furrows.

I determined to drain it in the autumn of 1857. The crop of that year had been about a ton of hay to the acre—of a poor quality. The land was filled with water grasses and various aquatic weeds, and during the season to which I refer it was seldom free from stagnant surface water, collected in the hollows and dead furrows. In many portions of the field the cultivated grasses were entirely destroyed.

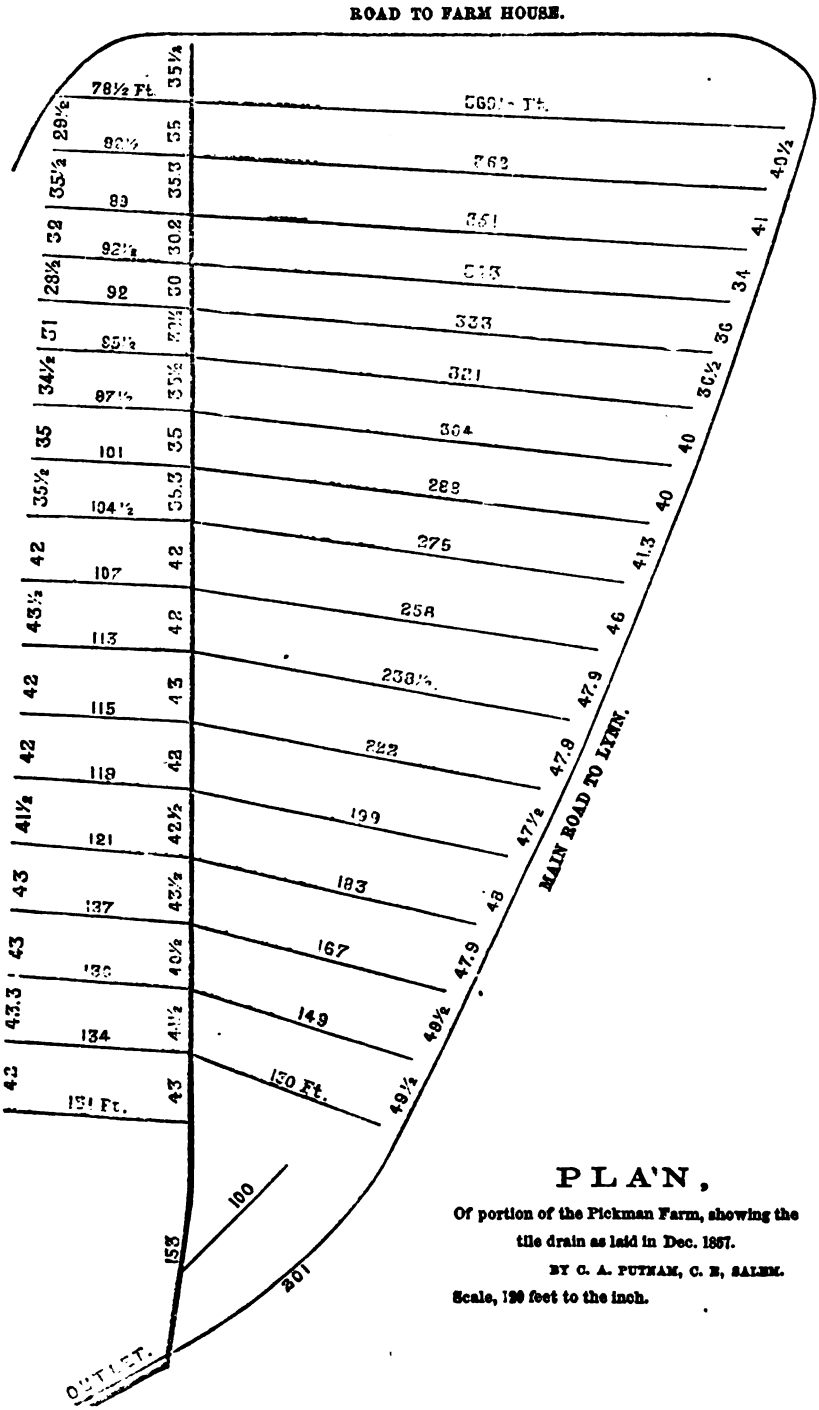
After the hay crop was removed, I ploughed the field, for the purpose of manuring and seeding again to grass; but I found at once that such an operation would be utterly useless. The soil of a large section was stiff, cold and clammy, and in spite of the high manuring to which it has been subjected, it had still that slaty color which distinguishes a water-soaked earth from the rich brown of well-tilled and well-drained loam. It was evident that all my manure and labor would be wasted, even in attempting to raise a grass crop, that hardiest of all products, just as manure and labor had been previously wasted in the cul-

tivation of corn and roots, on the same field, on account of the disastrous effects of water. I therefore abandoned my original plan ; and, as the field lies very near my barn-yard, in a convenient proximity to the manure heap, and at such a distance from my farmhouse that no time would be lost by the laborers in going to and from it, I concluded to devote it to constant cultivation. For I have always found that a farmer cannot afford to transport manure to the distant fields of his farm, while his grass lands lie at his threshold ; neither can he afford to employ his laborers in long journeys from their meals to their labor especially with the hoe and weeder.

The operation of draining the field commenced Dec. 8th, 1857. The open ditch was first cleared, to a depth, at the head, of three feet, and sinking five feet eight inches at the outlet of the field. In no place was the fall less than three inches in one hundred feet. Having thus prepared the bed for the main drain, I directed side drains to be dug, running at right angles with the main, commencing at a depth of two and one-half feet, and running to the depth required at the junction with the main. The side drains were dug at different distances from each other, according to the quality of the land—in some cases forty feet apart, in others less, as shown on the plan. *(See next page.)*

When the ditches were laid open throughout the field, I commenced at the upper portion to lay the tiles, taking care to keep the laying of the laterals and the main uniformly finished as I advanced in the work. The main drain consists of two rows of four-inch tile laid contiguously. The laterals consist of two-inch tiles. I used mostly sole-tiles ; using a few shoe-tiles only when the manufacturer's stock of sole-tiles had failed. The drains were filled as fast as the tiles were laid.

Although the weather was unusually mild for the season, while the work was going on, still the frost of December increased the difficulty of working in the stiff, heavy clay, and added to the expense of the operation. The job was finished, and the drains covered against freezing on the 24th. The expense of the work was $51.25 per acre, exclusive of hauling the tiles from Manchester, which was performed with my own teams. The cost of the four-inch tiles was $40 per thousand—of the



PLA'N,

Of portion of the Pickman Farm, showing the tile drain as laid in Dec. 1857.

BY C. A. PUTNAM, C. E, SALEM.

Scale, 120 feet to the inch.

two-inch tiles $12 per thousand. I contracted for digging the drains at 27 1-2 cents per rod, and paid an expert ordinary day's wages for laying the tiles. The joints of the tiles were snugly covered with wisps of meadow hay laid compactly over them—a small item of expense which I have not included in my estimate per acre. As the field is very flat, I was obliged to employ a civil engineer from time to time to give me the levels of my main drain, the flow of water not always being sufficient to guide me.

And now having described the process, I desire to give the result. This field, which had long been almost incapable of cultivation; which was always flooded in the spring, and parched in dry, hot seasons; which was disfigured by an open ditch, and by ridges and dead furrows; which had been for half a century a reproach to the adopted system of farming, began at once to improve in condition and appearance. Even during the winter of 1857-8, the water was carried off from it to a degree never known before, and although it was by no means brought to a proper condition, still the ploughing in the spring of 1858, and the cultivation during the season, were very materially improved over previous years.

In the season of 1858 the crop upon it was corn. The month of June was very wet, and in some of the deepest hollows, where water had stood for years, the corn was killed. Perhaps two thousand square feet of land suffered in this way, for the loss of which I was more than compensated by the gain of between five and six thousand feet, previously occupied by the open ditch. As the season advanced, the rains of August and September were carried off more rapidly. The crop of corn was sixty bushels to the acre, including the land where the yield had been destroyed or reduced by water. At the close of the season, in November, '58, I laid a thousand feet of intermediate lateral drains through the lowest points of the field, at an expense of $20.00. I also commenced subsoil ploughing, but was obliged to abandon it on account of the early freezing.

The spring of 1858 found the land in much better condition than it was the year previous. The winter and spring rains soon vanished from its surface. The loam was more friable; the clay subsoil, as expressed by the workmen, was more brittle.

It was ploughed and manured in May, carefully cleaned with a grubber, (for I was aware that the cultivation of the previous year had not eradicated the twitch grass,) and sown with mangolds, ruta bagas and carrots. The soil was easily worked, and the rows placed two feet apart, to allow the use of a horse-hoe and grubber, an excellent labor saving implement for root culture, purchased for me in England by Mr. Sandford Howard. The seeds germinated rapidly, indicating an increased warmth in the soil. The plants had become visible in long green lines across the field, which had been brought by repeated ploughings to an apparent dead level, when, on the 17th of June, the effects of thorough-drainage were fairly tested. It will be remembered that at that time we had a most copious rain — two inches and a half in twenty-four hours. On the morning of the 18th the centre of my field presented the appearance of a lake, and I began to fear that I was again to lose my crop—at least that portion of it covered by the flood. In twelve hours, however, the water was gone, and, with the exception of a spot about four feet square, no vegetation on the field suffered in the least. After removing the crop this autumn, a portion of the field was subsoiled, but more of it was ploughed in ridges, backing each furrow for the more perfect action of the frost. I propose to finish subsoiling in the spring. I found, on ploughing this autumn, great uniformity in the quality of the soil throughout the field, and wherever the clay was turned up by the plough it had lost its tenacious texture. The subsoil plough penetrated with more than twenty per cent. less draught than was required the year before.

In speaking of the crops raised upon this piece of land during the two years since it was underdrained, I have referred to the corn crop of 1857 and the root crop of 1858. An extended comparison of these two crops may not be inappropriate here, or uninteresting. I do not pretend that sixty bushels of corn to the acre is such a crop at our farmers ought to raise ; still it is above the average. And as my land was not suited to corn naturally, and had not been drained a sufficient length of time to adapt it to any crop, I must make a proper allowance. I should have stated that four and a half acres of the field have been cultivated since the drainage—one acre still being contin-

ued in grass, having been laid down the year before the draining was accomplished. On these four and a half acres there were raised two hundred and seventy bushels of corn, for the expense of raising which, I will accept a very common estimate, and allow that it was fully repaid by the fodder. I am by no means sure that the fodder on an acre of corn will pay for the ploughing and labor of manuring, and planting, and hoeing, and cutting, and housing, and husking, to say nothing of the cost of the eight or ten cords of manure which must be used in the cultivation. I have never found that it did pay these expenses. Still in making the comparison I will grant that it does, and consider two hundred and seventy bushels of corn at a dollar a bushel as the net proceeds of my four and a half acres of land.

On this same land this season, I have raised eight hundred and fifty bushels of mangolds and sugar beets, nine hundred bushels of ruta bagas, and eighteen hundred bushels of carrots, nearly eight hundred bushels of roots to the acre. The ruta bagas and beets were fair, but the carrots were very large, long and heavy, constituting by far the most valuable portion of the crop, and showing by their length the advantage of thorough drainage for this useful and important root. Estimating the mangolds, sugar beets and ruta bagas at a shilling a bushel, and the carrots at eight dollars per ton, the value of the crop is six hundred and fifty-one dollars. As I have not calculated the value of the manure in the cultivation of the corn, so I will omit it in considering this root crop; and I shall estimate the expense of ploughing, sowing, weeding with horse and hand power, and harvesting, at two hundred and fifty dollars, (a large estimate, considering that the work was done in mornings and foul weather, mostly by a force necessarily employed in haying,) I have then four hundred dollars in roots, as a comparison with two hundred and seventy in corn, after giving corn all the advantage that has ever been claimed on the score of fodder. Of the value of the two crops as food for cattle, I leave others to judge—at the same time urging upon all our Essex County farmers, large and small, the importance and profit of roots in every good system of husbandry—especially carrots, to the culture of which our soil seems to be peculiarly adapted.

But to return to the subject immediately before us—thorough-

drainage. I am aware that there is much to be learned upon this matter, still; and that notwithstanding the attention which has been bestowed upon it elsewhere, and the treatises which have been written upon it, we are yet in the very commencement of the business and have not yet adopted it as a part of our system of farming. We are still discussing how the water enters the tile; whether thorough-drainage is profitable; whether it is adapted to our climate; whether stone drains and open drains are not just as good and perhaps cheaper and better than tile drains; whether, after all, thorough drainage is of any service to us. I hear these questions discussed daily by our most intelligent farmers; and I am well aware that drainage with stones as preferable to all other methods has still many advocates among us.

Now this is not the time and place to enter into an elaborate treatise upon the courses of the waters, and the character of soils, and the discovery of thorough drainage, and the precise angle at which the laterals must enter the main drains, and the proper shape of the tile, and the water levels of our hills and valleys, and the dip of the strata through which drains are to run. The steps which led to thorough drainage, and the theory upon which it is based, are valuable and interesting, like the foundation and development of every great discovery. The careful study of this cannot be too highly recommended to our farmers. "Farm-drainage," an elaborate and interesting work on this subject, by Henry F. French, containing the whole matter in a most attractive form, should be a text-book in the hands of every farmer. In this work, the subject so far as at present investigated, is exhausted.

But there are a few practical questions connected with the case which I report, which perhaps may be profitably discussed.

I am often asked—"Is thorough drainage profitable?" This depends very much upon the location and quality of the land. Upon the location: The field, for instance, which I enter for premium, lies as I have said, in one of the most convenient sections of my farm, and is almost indispensable to an economical production of the crops I need. I have other land lying near, but it is occupied by orchards, or is so broken by hills that cultivation is either difficult or impossible. Here were five and a

half acres, unoccupied, at my very door, almost useless, unfit for grain or roots, and unable to bear grass of good quality and quantity for any series of years. It is a bed of clay, upholding a quality of soil which only required warmth and dryness to become highly fertile. Science and the experience of others taught me that such a subsoil, once disintegrated, would become of the highest value for tillage,—that droughts would not parch the crops, and that in its bed the growing plants would find an abundance of nourishment. The superficial cultivation which it had received, had produced no permanent benefit. The manure of fifty seasons had increased the depth of the soil, but had not served to warm it. There it lay in that solid basin of clay, inoperative, lifeless, and constantly borne away by the streams which ran along the dead furrows, and down the great open canal, into the highway, for the benefit of no man. I found that the expense of ploughing such land was too great. The open ditch was an obstacle, and the beds were troublesome. The process of ploughing was slow and heavy: and the result was often attended with great uncertainty. As a good farmer who had formerly rented the farm, said to me, "If I ploughed that field too early in the spring, I lost my crop, and if I ploughed it too late, I could do nothing with it." It is to be presumed that this is not the only piece of land in Essex County, of this description.

Now, without entering into a precise calculation of the return I have received for the investment of fifty dollars an acre, on these five and a half acres—a thing which is impossible—it is very easy to perceive that the crop of the present year alone, increased as it has been, and in some portions of the field insured by the drainage, would go far towards my remuneration. I now have a good field, whereas I formerly had a poor one. And it is hardly necessary to demonstrate to any farmer that an expenditure of fifty dollars on an acre of land, advantageously situated and of proper quality, is not an extravagant or unprofitable outlay. Were my land the only specimen of drainage in this country, it might be necessary for me to be more accurate; but the operations of Mr. Johnson of New York State, the father of thorough drainage among us, and of some of the best farmers in our county, who expend nothing on their farms without a fair

prospect of reward, are a sufficient guaranty that this mode of improving the land not only pays well, but is indispensable to good agriculture.

I would not be understood as saying that an indiscriminate application of thorough drainage to all soils is to be recommended. There are soils which do not require drainage, though not so frequently met with as many suppose. Heavy clay soils are a bane to the farmer without it—a blessing with it. There is a large quantity of what is called cold springy land—land in which the water percolating from the hill-sides is caught and held, and in which the springs thus fed are constantly seeking an outlet on the surface for the want of any other mode of escape, which would be made highly valuable by thorough drainage. I know many acres in this county, composed of a thin layer of loam and humus, upon a shallow bed of clay, beneath which is found a deep stratum of gravel. The clay is so tenacious that a great portion of the surface water never penetrates it into the gravel filter beneath, but lies stagnant on the level places and flows down the slopes until the valleys are constantly inundated. They yield but little. They need only thorough drainage to become warm and fertile. Swamp lands require a different mode of drainage; and although some may differ from me, I doubt if thorough drainage is applicable to such lands. A swamp is usually composed of a collection of decayed vegetable matter, of greater or less depth, occupying what may once have been the bed of a lake or pond. Through it or from it usually flows a stream, and the land itself may almost be said to be afloat. The subsoil is very often below the reach of any ditching. The level of the water may be governed by the outlet. In its natural condition the water is usually almost as high as the level of the land. This level of the water may be reduced in proportion to the fall which can be provided at the outlet by digging—seldom more than two or three feet below the surface of the soil. If, therefore, by a proper arrangement of open ditches and a sufficient outlet, the water is caught as it flows from the hill sides and is conducted out of the swamp, you will have just as many feet in depth of a porous, peaty soil as you have reduced the level of the water—no more—perhaps, and probably less, on account of the settling of the swamp, as the

water is drawn off. This soil, composing islands so to speak between the open ditches in which water stands, never loses its porosity; and it usually requires some application of gravel or clay upon its surface to bring it into a condition fit for cultivation. It has no surface water, and it has no subsoil that has been reached. It is in reality agriculture afloat, and it must remain afloat so long as the reservoir of water beneath it is supplied, and not emptied. I speak of swamps as we usually find them in our own county, and in many parts of Massachusetts. I do not think tiles or blind drains of any form are applicable to such tracts of land, for I consider a firm subsoil as almost indispensable to the proper use of tiles, not only on account of the solid basis upon which they ought to lie, but on account of their capacity for discharging water. I have seen many a stone drain sunk in a swamp, carrying down many a dollar with it. If such spots are to be drained at all, let it be done as the Venetians drained the lagunes upon which they built their city—by canals, and not by sewers.

With the exception of certain portions of swamp land lying upon a firm subsoil, shallow swamps as they may be called, furnished with a rapid outlet, and lying in some convenient locality for cultivation, few swamps can be reclaimed and subjected to thorough drainage.

There can be no doubt that all lands in this country so situated as to pay for careful cultivation may be profitably underdrained whenever they require it. And all land requires draining where "stagnant water" either "in or on the soil impedes the growth of all our valuable crops."

I am frequently told that nature has provided most of our farmers with materials for draining close at hand, in the stones of their fields, and that under such circumstances tiles are an unnecessary expense. I am aware that it is a good plan to bury the stones which interfere with cultivation. But I doubt the economy of attempting to convert them into drains, except for the purpose of constructing a large free water passage, tapping a copious spring, or furnishing a culvert for a rapid stream. I should never expect to thorough drain with stones, and should consider it a misfortune to find enough in my land to tempt me to use them. I should certainly never haul them upon the land for

the purpose of constructing a drain, and if I found them there I should be tempted to haul them off rather than use them. Stone drains cannot be constructed as economically as tile drains. They require vastly more digging, and they are bulky and heavy to transport. They cannot be laid so as to prevent the particles of earth from entering their crevices, and their walls offer retreats for moles and mice too comfortable to be neglected. Owing to their liability to be obstructed they are not permanent, and, except as conductors for rapid streams, I doubt if they are ever effectual. In the field which I have described there are 7562 feet of drains. The work began on the 8th and was finished on the 24th of December—sixteen days, including Sundays and foul days. Let any one compute how long it would have taken to haul stones enough for these drains, even had they lain immediately about the field, and he will be able to judge of the comparative economy of the two systems. And considering the character of the soil and the level of the field, I have no doubt that stone drains would have been ere this inoperative. I doubt if clay beds can be properly drained by any such method. I have in my mind a beautiful meadow which was drained nearly thirty years ago with stone drains, and brought for the time into fine grass land, but which is now rapidly returning to its original aquatic vegetation. The drains are evidently obstructed. The work is evidently a failure. And why?

In answering this question, I am brought to the consideration of a point frequently brought forward in all discussions upon thorough drainage with tiles. Place a tile into the hands of any man, or show him a tile-drain laid and ready for covering, and he will almost invariably ask you how the water enters the pipe. Mr. French in his work seems to adopt the theory of Mr. Parkes, that five hundred times as much water enters a drain at the crevices or joints as through the pores of the tile. This may be so. But one thing should be remembered—that no crevice should be large enough to admit particles of earth with the water, if the water passage is to be kept free from obstruction. The great advantage of tiles over stones is that they strain the water out of the soil without admitting any earthy particles along with it—an operation impossible in a stone drain. And unless the crevices or joints are close enough to perform this

duty, the drain must be a failure. Now take any number of feet of two inch pipe, properly laid, with the joints carefully adjusted, and the space occupied by the crevices is very small in comparison with cubic inches of the bore. Yet from this pipe will be discharged at times a stream of its full capacity. Would not crevices large enough to admit this volume of water endanger the drain? I have no doubt that tiles act as strainers all along their course. The insinuating power of water in the soil is well known. It pursues its course in obedience to the laws of gravitation with a persistency almost unequalled. The drop that falls upon a hill side commences at once its journey to its level, and nothing stops it. No soil is so hard that the hidden vein may not be discovered winding its way through it on its mysterious errand. It seeks the current that is to bear it on in the great circuit of the waters. The porous pipe which you lay in the earth becomes at once a channel towards which the surrounding waters tend. The pressure is on every side. That law which propelled the drop through myriads of capillary tubes with an irresistible force, enables it to enter through the minutest passage into this artificial pathway—distilled perhaps—but nevertheless driven there, as the fluids circulate through every living thing, animal or vegetable, not by visible tubes alone, but by channels which the microscope can hardly trace or discover. May not the very philosophy of tile-draining, with its strange success, consist in this—that on every square inch of its surface are multitudes of orifices drawing the water away from the adjacent soil, and acting as outlets for the porous earth as the water is distilled away from it? Else how is a tile drain so much more effectual than any other drain ever invented? Crevices and joints do not account for this.

It will be seen by the accompanying plan that I have varied the distances between the lateral drains from 30 to 40 feet. In doing this I endeavored to be governed by the condition of the land. The subsoil throughout the field is of the same quality, but the upper and central portion of the field being somewhat lower than the rest, and receiving more flowage of water from the surrounding hillsides, rendered more frequent drains necessary. So far as I am able to judge the distances adopted by me have, on most of the land, proved sufficient for all practical

purposes. In the middle of the field, where the 35 feet spaces end and the 42 feet spaces begin, I thought proper to lay four intermediate drains on each side of the main. These were laid last year. I think I have seen the benefit of them, the collection of water at that point being naturally very great.

It is impossible to fix any rule with regard to the distances of drains. But in land like my own, where the clay is very stiff and the accumulation of surface water very great, I think 25 feet in the wettest portions and 35 feet in the driest would be a fair and economical rule to adopt. The rains in this country are often very copious, and the work of relieving the soil of water is very great. Our drains should undoubtedly be more frequent than in a climate whose rains are more after the order of a drizzle.

Next in order after the distance to be adopted between the drains comes the question of depth. Tiles must of course be laid below the reach of the subsoil, plough and the frost. This is indispensable. Beyond this opinions differ very materially. The theory seems to be well established that deep drains draw farther than shallow ones, which probably means that four or five feet will draw better than three feet, on the principle that the pressure of water is increased in proportion to the depth of the drain. And it is moreover urged that deep drains discharge more water, and more quickly and thoroughly drain the land in winter and spring. This is undoubtedly true to a very great degree. On my own land, where the depth varies from two feet nine inches, (a depth which I was obliged to adopt at the head of the first few laterals in the field, in order to give them fall into the main at that point,) to five and a half feet and less, I have found that they worked best at a depth of about three and a half feet. This seems to be well adapted to the stiff clay which I drained. I fixed the head of the main at three feet in order to prevent the necessity of digging too deep at the outlet; and at the point in the field where this drain reached a depth of about three and a half feet, my drainage has been most successful. Near the outlet I was obliged to sink my main drain between five and a half and six feet, and of course the laterals are at the same depth—perhaps five feet at the head, and five and a half at the junction. On this spot the drains have not worked so well. I can perceive a very considerable improvement in the land from

year to year; but on a small space, about three rods square, where the drains are at this depth, the land has not improved to the extent found in all the rest of the field.

I have ventured to extend my statement to the Committee to what may perhaps appear to be an unnecessary length, not for the purpose of throwing any new light upon thorough drainage nor for the purpose of preparing an essay upon the subject, but in order to show the importance which I attach to the work. Not all lands require it, neither will every part of a New England farm pay for it. It has been truly remarked that thorough drainage "does not belong to pioneer farming." But there is scarcely a farm in Essex County on which it may not be profitably employed to a greater or less extent. Those spots, frequently seen, which produce nothing but "run-hay" while corn is growing luxuriantly on the adjoining slope, may perhaps be very conveniently located for better cultivation. Two or three tons of good English hay to the acre would soon pay for draining. How often do we see the grass crop of a farm almost entirely gathered from the cold wet fields, because the grain and root crops must occupy the warmer elevations. Would not the cattle of that farm rejoice in the fruits of a little drainage, and their improved condition, together with the increased hay crop, soon return the money spent in tiles and ditches? There may be a little spot near the barns where in a leisure hour the farmer could cultivate a few additional roots for winter forage, but the chilling waters will not yield their sway, and he abandons it to water grasses and weeds. A few tiles might give him a light and loamy bed in which his crops would rejoice.

Thorough drainage does not belong to pioneer farming it is true. It is no part of the work of clearing the forest and expelling the wild beasts. Neither does it belong to fancy farming alone. Every man in such a region as Essex County who can afford to keep his farm through care and industry and thrift can just as well afford to drain portions of it as he can afford to fence and manure it. If he can afford to do the one he can afford to do the other. If he applies his industry to the one, he can better apply it to the other. For he may build the most substantial fences around fields loaded with manure and yet find himself enclosing nothing but "vexation of spirit" and a re-

proach to all his labor, because he has failed to lay the foundation of his agriculture on a well drained soil. Every mechanic who owns his cottage and a few adjoining acres—(and I am happy to say that our county has hundreds of such men)—will do well to commence at the bottom of his soil if he hopes to reap the reward of the farming which he snatches from his bench and workshop.

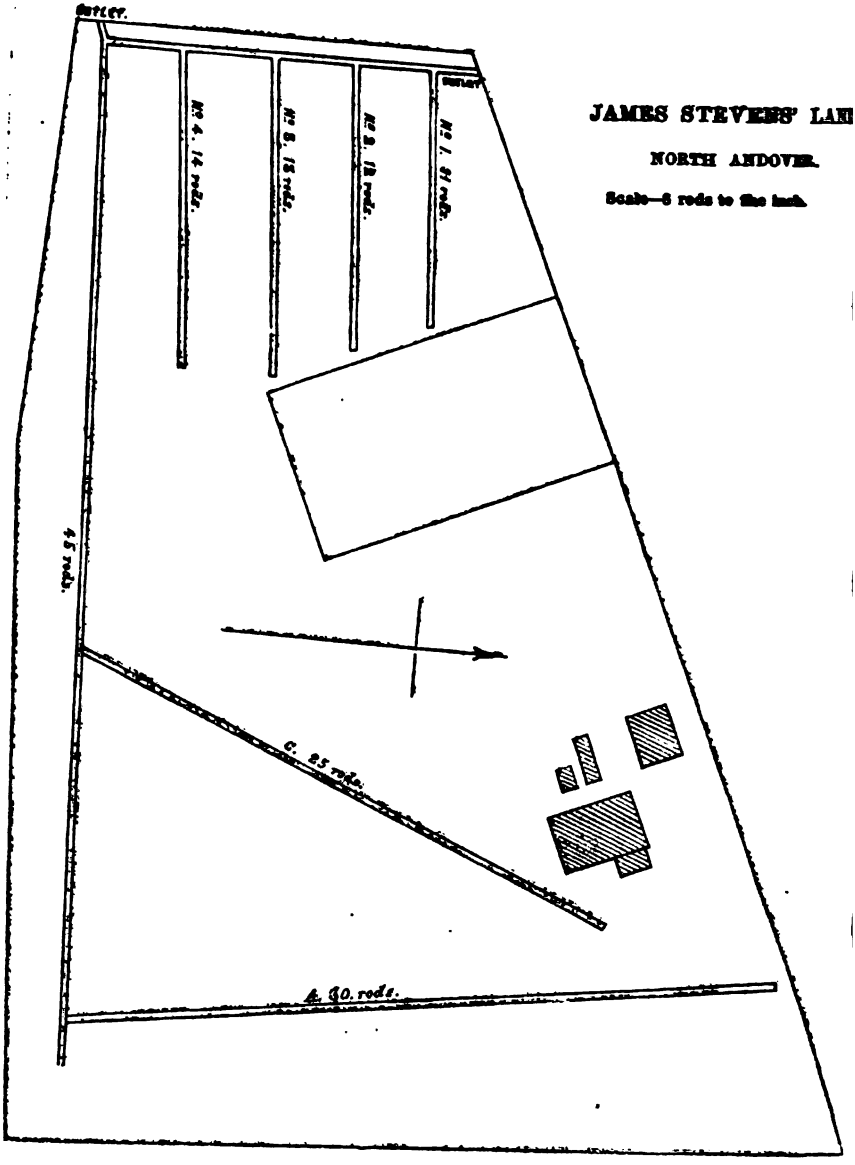
I have dwelt the more too upon tile drainage because strange as it may appear, stone drains have still their advocates among us. He who improved the plough is looked upon as a benefactor. The inventors of mowing machines, and horse-rakes, and horse-hoes, and well-balanced shovels, and seed-sowers, and rock-lifters, and stump-pullers are all praised for the benefits they have bestowed upon mankind, and no man thinks of returning to the primitive implements which have long lain neglected by the side of these improvements. But these men dealt with the surface of the whole matter; while he who taught us that by "frequent drainage" with tiles our land might be warmed and freed from stagnant water, and enabled to resist drought and defy flood, prepared the way for a system of agriculture which has already enriched England and Scotland, and may also enrich our own county—a system which furnishes opportunity for the best implements of husbandry and gives them their true value. Tile-draining was a long step in advance, from which there should be no step backward. And when we return to the plough of the Puritans, and to sun-burnt manure heaps, then may we return also to stone-drains, and watch the water grasses growing over the very spot where the stones were buried.

Salem, November 14th, 1859.

JAMES STEVENS'S STATEMENT.

The experiment in underdraining, to which I ask your attention, was commenced in September, 1857, and completed in October of the same year.

I have laid about 75 rods of drains, as specified on a plan herewith submitted. (*See next page.*)


JAMES STEVENS' LAN
NORTH ANDOVER.
Scale—6 rods to the inch.
No 4. 14 rods.
No 3. 13 rods.
No 2. 12 rods.
No 1. 31 rods.
45 rods.
C. 25 rods.
A. 30. rods.

I began the work by first having a complete survey and level of the field taken, that I might be certain in what direction the water would run, and whether there was fall enough to let the water off freely. I have learned by experience that a little care properly applied at the commencement of underdraining operations, saves much labor in the end. It is a kind of work that "once well done is better than twice poorly." My drains extend about seventy-five rods, and operate on about two acres of land. They are generally laid to the depth of from two and a half to three feet deep, and are made from stones gathered from the field and other parts of the farm. They are so covered that the land can be ploughed and cultivated without in the least disturbing the drains. They cost about $1.00 per rod, and I think the value of the field is improved by them four times as much as the cost. Before the underdraining operations were commenced, the crop of hay was very light and of a very inferior quality. The present season the same field yielded nearly two tons to the acre; the crop was clover, and of the first quality. I also mowed about two tons of second crop from it, and the fall feed at the present time is very abundant.

I was greatly disappointed at the result of the last committee's investigations, and shall be pleased to have the present committee view my premises at such time as may best suit their convenience. I am fully satisfied that such low land as mine with a hard subsoil, can be greatly benefitted by underdraining.

North Andover, Nov. 10, 1859.

WILLIAM R. PUTNAM'S STATEMENT.

My experiments in draining have been so recent, that I feel that I have but little information to give that will be of practical use.

The field, to which your attention was called, contains a little more than four acres. It is situated near the bottom of a large hill, which rises about two hundred feet above the field. The soil is a rocky loam, resting upon a hard gravel subsoil; the loam varies from one to three feet in depth; the slope of the

field is to the northeast. It has been so cold and wet in the spring, that it could not be planted until late in the season. The practical question with me was, how to dispose of the surplus water. Some advised me to plough the land into ridges and open surface drains. From my experience in an adjoining lot, with surface drains, I found they washed so deep, that I had to fill them up. From my first experiment with covered drains, I thought they drained the pocket more than the land. This was a covered drain laid in 1842. For a few years it did well, but for the last ten years it has been worthless. I think this was caused by laying it too level and not keeping the outlet clear.

Ten years ago I laid a few rods of covered drain in the field which you saw, which has continued to do well, and the benefit to that part of the field has been such as to induce me to lay more.

In December, 1857, I laid 17 rods of stone drain, about four feet deep, laying stones at the bottom and flat stones for covering, then put on pine boughs to prevent the dirt from filling the water passage. This was done at a leisure time, and in connection with other work, so that I cannot state definitely how much labor was bestowed upon it. The stones were upon the field, and had to be carted off if not used in this way.

In May, 1858, I laid about 25 rods of drain, using cedar poles at the bottom and covering them with a slab, leaving an open space of about three inches for the water passage; then put in about eighteen inches of small stones. This has continued to work well thus far. This was opened by ploughing and scraping out two feet of the surface with the ox shovel, and the bottom with a hand shovel. This saves much hand labor, and when the team is not in use I think it much cheaper than to shovel it all out by hand.

Last spring I laid about 27 rods of tile drain, using three-inch tile, which cost $18 per thousand, the expense of teaming and waste by breaking making it cost about 25 cents per rod; the digging cost 25 cents per rod, and laying and filling 8 cents—making 58 cents per rod, at three feet deep.

You ask how the water gets into the pipe. Theoretically, it will come in through the pores of the tile; but practically, I

think much of it gets in at the joints. When I laid my drain, I had not seen Mr. French's book upon drainage, and I was troubled to keep the bottom of the drain level enough to have the tile fit close. I found I could lay them best by using a small strip of board to lay them on, and small sods to cover the joints.

You ask, at what distance apart the drains should be laid. With me it has been an object to see how far apart I could have them and carry off the surplus water. I think that three rods each way is as far as we can expect them to operate, or about 40 rods per acre,

Danvers, Sept. 21, 1859.

CHARLES PROCTOR'S STATEMENT.

The part of my field which I have appropriated for grass is surrounded, as you may perhaps recollect, by hills, with the exception of an opening on the easterly side. From those hills emanate many springs. On every side, at the foot of the hills, I have cut in former years deep open drains. The purport of my letter is to relate a fact of curiosity and pecuniary interest to me.

On the northerly side I left about five rods, at the corner, without a drain, for the convenience of carting over. The ground there seemed firm, and I thought I could not be troubled with water. The meadow, south of this, I sowed with herd's grass and red-top. I obtained two good crops. The crop this year was quite as good. By examining, I found that the water was standing in the little hollows in all that part of the meadow. The question with myself then was, *where* can that water come from? I suspected that *five rods* that was left without a drain. The soil there is three and a half feet deep, and resting on a stratum of clay. I caused a drain to be opened down to the clay, and found a channel for water four inches in diameter, through which quite a stream of water was flowing, which rose in the meadow below. I then placed a row of stones on each side of the drain with a covering stone on the top, making a drain of about six inches square, and then threw in about a foot in depth of small stones, then a little hay, then sods, and covered the whole with earth.

The effect of this drain is already apparent. The water has entirely left the meadow below and is flowing quite freely through the underdrain. The ground is in a better state to cart over than before. By this five rods of underdrain I have redeemed an acre of excellent soil from the destructive effects of a constant rising of spring water.

The cost of this drain, by exact account, is not more than 75 cents per rod.

I intend to put in other underdrains this autumn, the good effects of which will be even more apparent than the above described.

The grass over and immediately contiguous to the underdrains which I put in in the spring, is the best I have on the field.

The little experience I have had in underdraining has taught me that, to be effectual, an underdrain must be placed at the foot of every hill where springs rise, or, as the Irish say, "between the high and the low," and parallel with the hill. Such drain will take all the water that would otherwise fill the grounds below. Then, by cross drains at suitable distances, all excess of water may be taken from the fields. I think the subject of underdraining should interest the whole farming community, and have no doubt that it will prove to be of the greatest practical importance to many experimenters.

Rowley, Oct. 31, 1859.

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LEWIS ALLEN'S STATEMENT.

Agreeably to your request, I herewith hand you a statement of my experience in underdraining. Six years ago this fall I had a piece of land that was so wet and springy that I could not drive a horse over it without much difficulty. I had a trench dug through it about 2 1–2 feet deep to the hard pan, terminating at the brook. I had stones laid in the bottom of the trench about the size of a peck measure, far enough apart for another stone of about the same size to cover them, then filled up with smaller stones to within a foot of the surface, then filled up the trench with earth to a level. The next year the land was

ploughed and planted with corn, which was very good. It has since been in grass, and as good as in any part of the field. The water has run from the drain ever since it was laid, and has so completely drained the land that a horse can be driven over any part of it. I was so well satisfied with the above, that last fall I had about 500 feet of the same kind laid in a low piece of land when the mud was much deeper, in consequence of which the drain settled a few inches. It still, however, answers the pur pose and drains the land so that a team can pass over any part of it, which could not be done before. Were I to lay another drain where the mud was deep, I should place boards at the bottom before placing the stones in the trench, which I think would prevent in a measure its settling. I am so well pleased with this mode of draining that I shall do more of it rather than be at the expense of purchasing tile.

South Danvers, November 9th, 1859.

R. S. FAY'S STATEMENT.

In reply to your inquiries as to my experience in under draining, I regret that it has not been very extensive or very thorough. The soil of my farm is light and the subsoil gravel, which is not retentive enough to hold water as long as I should like. It would not suffer in this respect if it should be visited by a shower every day in the year.

I have, however, some low bogs which have been made very productive by draining. These lay very low and are difficult to drain for want of sufficient fall. Covered drains I have found therefore to be impracticable. Those which I have constructed have become filled up in a few years time, and I am taking them up and converting them into open drains. I do this very reluctantly, as it is more expensive to work lands where the drains are open, besides being unsightly. The advantage of open drains however, on peaty and swampy lands, over covered drains are incontestable; for besides avoiding the danger of being filled up from the sediment of such soils which will get in, unless the flow is constant and rapid, a great deal of the water is removed by evaporation.

Uuderdraining, especially tile draining, has worked wonders upon heavy clay soils, wherever there are springs. The effects in some cases which I have seen are marvellous, bringing the land into fine tilth, and rendering it extremely productive. I think the cost of underdraining such lands would be repaid in a few years by the saving of labor alone in their cultivation, besides doubling the value of the crops. This subject has become much more important since the introduction of mowing machines, horse-rakes, drills, und other labor-saving implements in the cultivation of the soil. "A wet spot" in a mowing field ought no longer to exist, if we wish our machinery to work to advantage.

Allow me to remark in conclusion that underdraining land is a science of itself, and should not be undertaken without a full and thorough survey, and a knowledge of what we are about. I have lately been reading Judge French's book on this subject, which is in my judgment one of the most thorough and complete treatises upon the subject that I have seen, and I hope that no farmer will undertake any expensive operation of drainage without first giving it a perusal.

Lynn, August, 1859.

R. S. FAY'S LETTER ON MARKET DAYS.

[The following letter to the Secretary was read before the Trustees at their meeting in November and ordered to be printed in the Transactions, with the reports respecting three of the markets held the current year under the direction of the Society.]

LYNN, November 2d, 1859.

My Dear Sir :—As it is very uncertain if I shall be able to attend the Trustees meeting in November, I wish through you to call the attention of the Trustees to the subject of markets, in the success of which I feel the deepest interest, and the importance of which to the agricultural interest of this county is beginning to be more and more felt and understood. I seek no apology for doing so, because in this matter having taken a

leading part in putting the "ball in motion," I am bound to do all in my power to keep it rolling until the object aimed at is fully reached.

What has been done this year is but a preliminary step, exciting attention to the subject and paving the way to something like a working system, which, when once established, if it is worth pursuing, will take care of itself. It will need no fostering or aid of any kind, the motive power being the self interest of those who are to sustain it. I propose to allude briefly to the steps already taken, so far as they furnish a guide to future action, premising only that the Essex Agricultural Society have acted in the matter with a liberality of sentiment and a steadiness of purpose which is worthy of all praise.

The first market was held at South Danvers, and it was largely attended by those who came for business as well as from curiosity. Mr. Putnam's report of that market is clear and precise. He states concisely the advantages of these markets, and he also says that from his personal observation—and I know of no one better capable of judging upon this point—he thinks that there is a strong desire in the community to see these markets established. The next market, which was held at North Andover, was largely attended, and the place itself seemed most admirably adapted for a truly agricultural market of considerable importance.

The same interest which Mr. Putnam speaks of in his report I found at North Andover, and I could not but feel that such gatherings, if they could be confined to those engaged in the business of farming, would of themselves repay the cost of attendance to all.

The next market was at Georgetown—a place admirably situated for a market; and though the day was wet and disagreeable, I noticed many who came from long distances to decide in their own minds, from actual inspection, of the trials of different mowing machines, which to select for use. This incidental advantage of markets struck me with great force, and gave me renewed hope of the permanent usefulness of the institution. Let it be an established fact that annually, on the third Wednesday of June, there would be a market for hay-making implements of all kinds and a trial of them, and there would be a throng to

witness their operation with a view to purchase that would surprise every one. Georgetown, in my humble judgment, has many advantages for this important purpose, and none of the drawbacks attending trials of this sort in the neighborhood of larger towns. The great majority of those who would attend would come *for business*, which is the cardinal point to be kept in view.

The fair at Newburyport I did not attend, but from the accounts which have been published I should infer that it was not a business affair at all, and that it would have been better if a regular agricultural market is the object, to have held it in Rowley or West Newbury, but of that it is for those who reside in that part of the county to judge.

In Mr. Putnam's Report he says of the South Danvers market —"There was the usual quantity of pedlars and catch-penny scenes which are found about all our public gatherings," and he expresses the hope that "hereafter the civil authorities will not allow any of those exhibitions which tend to make it a holiday instead of a market." This is sound good sense. There is no more reason why gentlemen who meet on agricultural business should be annoyed by fandangoes, dancing monkeys, bands of music, and all such nonsense, than the worshippers in a church. and to avoid such scenes, disturbing if not disgusting to men who are in earnest about their affairs, we ought, as far as possible, to establish our markets where they are the least likely to occur, and at the same time to be convenient points of access to both buyers and sellers.

The second market at North Andover was similar in its character to the first, so far as the show of sellers was concerned. But few sales however were made, owing to the fact probably of the abundant supply of stock thrown upon all the markets this season from the apprehended scarcity of hay the coming winter. The second market day at South Danvers would have been a very large one from the indications furnisaed but for a severe rain storm. Even this did not deter many from attending, there being quite a number of cattle, sheep and pigs, and samples of roots, such as carrots, beets, &c., which were offered for sale at fair prices by the ton, and many tons would have been sold had not the weather effectually prevented buyers from at-

tending. The markets at North Andover, at Georgetown, and the last one at South Danvers were very materially and injuriously affected by the rain. At the North Andover first market the rain began to fall at about 2 o'clock, and broke up the market almost entirely. At South Danvers it prevented any business of consequence being done. At Georgetown, where it rained heavily all the morning and again towards night, it prevented the purchasers and sellers of stock from coming together, the pens being at a considerable distance from a place of shelter, but it did not prevent a large crowd from witnessing the trial of mowing machines, and of inspecting them before and after the trials, because they and the field on which they were tried were near a place of retreat from the rain. At North Andover and at South Danvers there is no tavern or public house within a convenient distance of the market place, the consequence of which was that the moment the rain began to fall every one left the ground.

I have thus gone over the material points presented by those who have reported upon these experimental markets, and from my own observation of them I learn from them that a general interest has been awakened in their favor, and that they have been well attended. On the other hand, although the places have been well selected in most particulars, experience has shown that in order to establish them as a fixed and regular system they should, while being made accessible to those who have occasion to use them, have also sufficient permanent accommodation for stock, and for the assemblage in a commodious manner of all other articles for sale, and that they should likewise have a shelter for those who attend them from the heat and cold, the rain and the dust—or in other words, they must be near some large public house, to which all can freely resort not only for these purposes but for food, and for the transaction of such business as requires anything more than common buying and selling of stock and produce. Now this is the great want, at South Danvers and at North Andover, and unless this want is supplied a market cannot succeed in either of these places. I have been informed that this want will probably be supplied before another year at North Andover; and as it is out of *my beat*, I do not intend to propose anything with respect to that market.

The Georgetown market is capable of being all right in every respect by simply providing accommodation for stock in the immediate neighborhood of the public house already there. I have only therefore to speak of South Danvers, and I regret to say that after much inquiry no spot has been found wherein to fix a market containing the necessary space and accommodation without a very large expenditure of money, which no one is willing to make. South Danvers has also proved objectionable in some degree from there being so large a population, which is easily attracted to a market from curiosity, but which does not contribute anything to its success.

Under these circumstances it has very naturally excited the inquiry—cannot a more suitable point be found which will accommodate equally well this flourishing agricultural region? Danvers, where the Fair has been held for the last two years, seems to combine all the advantages of South Danvers without the disadvantages, and if a market could be established under a vote of recommendation of the Society at that point, to be held on the first Tuesday of March next, and continue as a monthly market ever after, it is believed that Essex County would have one market at least which would fulfil the reasonable expectations of every one. It is sufficiently removed from the larger towns to be free from the annoyance of a crowd of idlers, and it would be for the interest of the town to make the market as orderly and quiet as those at Brighton and Cambridge. It would cost nothing to establish it, and I will engage that every accommodation will be furnished for man and beast, and every notice given of the markets from time to time free of all expense to the Society. I earnestly hope therefore that the Society will look favorably upon this measure, because I feel it of great importance that having begun the good work the Society should continue to watch over it. By adopting this measure one permanent market at least will have grown out of the year's labors, and it will be an example for other parts of the county to follow what has been done by a similar movement.

I have trespassed at much length in thus presenting my views, and the haste with which I am obliged to write, owing to my many engagements before my departure, has made my remarks rather more desultory and less connected than I could wish, but

I am so anxious to have the measure adopted at your next meeting, in order to commence this winter the work of preparation, that I must let this go as it is, asking you to present the views herein expressed in such a manner as you may think most suitable and proper.

With much respect and regard, truly your friend and servant,

RICHARD S. FAY.

MARKET DAY AT SOUTH DANVERS.

The Committee to whom was referred the management of the Market at South Danvers, being the first held under the direction of the Trustees, offer the following report :—

They selected as the most suitable location that part of Washington street near the head of Foster street. They had forty of the Society's pens put up by the side of the street. They also had hand-bills printed and distributed throughout the County, giving notice of the time and place of sale.

The day was pleasant ; and at an early hour we had the visible evidence that the community were interested in the experiment.

There were offered for sale 85 cows, 37 steers and heifers, 9 bulls, 36 horses, 5 pairs of working oxen, 13 fat oxen, 112 pigs, 96 sheep and lambs. These belonged to 70 different individuals, and were from 13 different towns in the county. Trees, from the nurseries of the Messrs. Lakes and Pettingill of Topsfield, were for sale. Strawberry and other vines were sold by Mr. Page of Danvers.

Farm implements were exhibited by several individuals, among which we noticed particularly a one horse mower, of the improved Ketchum patent. This appeared better adapted to the wants of the small farmers in Essex County than any mower we have seen. Of its practical operation we have no means of judging. In this connection we would remark that as the time will soon come when farmers who intend to purchase this season will have to decide upon which machine to buy, we would sug-

gest that it might be well for the Society to fix upon some time and place, and in connection with the market have a trial of the different mowers, if the manufacturers are disposed to thus exhibit them to the public. We think it would be well to have it as early as the fourth Tuesday of June.

We noticed a cultivator shown by J. A. Learoyd of Danvers, a new patent; also, the usual quantity of pedlars and *catchpenny* scenes, which are found about all our public gatherings; and we were pleased to notice the good order which prevailed, and the absence of intoxicating drinks; but the sound of the drum did not chord well with the lowing of the herd and the bleating of the flocks; and we hope hereafter the civil authorities will not allow any of those exhibitions which tend to make it a holiday instead of a market.

Of the results of the first market the Committee feel that it was all that could be expected. The large number that attended it is a plain indication to our minds that the community wish for such markets. We know that curiosity, and the desire to see something new, enters largely into the composition of a real Yankee farmer; yet it is the hope of gain that calls him from his home. So far as our observation has extended, we think that there is a strong desire in the community that these markets should be established. We have been asked by those who have doubted the expediency of them, if the sales were such as will induce farmers to drive their stock there. In answer to such inquiries, we would say that if the sales were low the natural result will be to induce more buyers to attend, and if articles are not sold, it is a cheap method of advertising. The market will be to the farmer what the advertising journal is to the merchant—if it does not sell his ware it informs the public where they may be obtained.

What the small farmers of Essex County need is not so much an increased price for agricultural products as some system by which they can dispose of their surplus produce without consuming so much of their time.

We would state this fact in illustration of the benefits of a ready market. The manufacturers of pickles in Boston are in the habit of contracting for their cucumbers in the spring, to take at a fixed price all that can be grown upon a given number

of acres. They thus get them at less price and the producer is better rewarded, because he loses no time in marketing them.

We have been frequently asked how often we intend to hold these markets. Our reply is that it is an experiment, and that they can be fixed only as the wants of the community demand them.

In closing we would suggest that it might be well for the Trustees to appoint some one whose duty would be to have the general charge of the markets and make the reports of them.

For the Committee: WM. R. PUTNAM.

Danvers, May 16th, 1859.

MARKET DAY AT NORTH ANDOVER.

The second of our Market days came off at North Andover, near Sutton's Mills, on Tuesday, May 20th, 1859, and was well attended, notwithstanding the chilliness of the early part of the day, followed at noon by rain, that came on just after the auction sales commenced, which put a stop to the business. There was a smaller number of animals presented than at South Danvers. The independent sale on the day previous at Methuen may have tended in part to this. There were more fat cattle, however, comprising 14 yoke. A 5 year old steer from John Barker of Andover, weighing 2400 lbs., and the yearling colt of C. A. Butterfield, weighing 660 lbs., were two of the most attractive features at the grounds. There were entries of stock from the following places:—Andover, 24; Lawrence, 4; Wilmington, 2; Boxford, 3; Middleton, 2; Billerica, Newburyport Great Falls, West Newbury, East Bradford, Bradford, Danvers, Lowell, Salem, and Danville, N. H., one each, consisting of 130 cattle, including oxen, cows, and heifers, 102 swine, 22 horses, 15 sheep, and 11 coops of fowls.

The sales previous to the auction were 13 cows and heifers, from $35 to $45 each. One yoke of fat cattle from Danville, N. H., for $9.00 per 100. One sheep and 2 lambs $12.00 Lo t of shoats for $4 50 each. Sucking pigs from $2 50 to $5 00.

The sales at auction in the forenoon were principally wagons and other vehicles, 10 of which averaged from $10 50 to $63.

Previous to the rain the following animals were disposed of: One yoke 4 year old steers for $100 00: one do working oxen for $100 00; one yearling bull $9; one cow $20 00; cow and calf $32 00; one pr. working oxen $52 00; 5 horses ranging from $20 to $70. There may have been exchanges effected which could not be ascertained for entry. The farm implements on the ground attracted much attention. Whitney's patent ploughman fastened to a Michigan plough, Wetherell's horse hoe, Ketchum's one horse mower, from the manufactory of Nourse, Mason & Co. was attractive, and two or three were engaged. The one exhibited we left with Mr. Baily of the Committee. Manny & Allen Mowers; Russell's Mowing machine; new revolving Cultivator; Whitney's self-sharpening Hay Cutter; chain pump tubing; Sawyer's Improved Cultivator, and Johnson's patent Hog Trough were prominent. The hog trough was neat and simple, and was thought to be a useful article.

For the Committee, JOHN M. IVES.

North Andover, May 20th, 1859.

MARKET DAY AT GEORGETOWN.

The Committee of arrangements for the Market day held at Georgetown June 21st, present the following report.

Owing to the foul weather the market was not so successful generally as it would have been had circumstances been more favorable to the carrying out of the plans laid down by the Committee.

The show of cattle and horses was small, many of those present not arriving until after the trial of the mowing machines had begun. But little interest could be got up in their favor, it all turning to the field of the horse mowing.

This portion of the market must be considered as rather unsuccessful. The number of entries made was forty-one:—consisting of horses, colts, oxen, cows, bulls, sheep and swine. The following is a list of the amount of stock sent from the various towns:—From North Andover three entries, Andover two; Newbury one; Lowell one; Bradford one; Byfield two;

Groveland two; West Newbury one; Haverhill two; Boxford two; Ipswich one; Georgetown seventeen.

Owing to the continued rain the auction sales were not very extensive. A considerable portion of the stock was driven away previously to the sales commencing. But few buyers were present, and their wants did not appear very urgent; consequently but little property changed hands. One Jersey Bull was sold for twenty-six dollars, and a native Bull for seventeen dollars and a half. Considerable other stock was "knocked off" to the highest bidder, but the property not changing proprietors, the conclusion is the prices were not satisfactory.

Charles Boynton's stallion St. Lawrence, and the gray stallion owned by Mr. Sawyer of Boxford, were on the cattle grounds, and received their share of attention; also, a pair of two year old, half Devon steers, owned by Hiram N. Noyes of Georgetown, which by their docility and beauty gained the first premium in the minds of the spectators.

The principal feature of the day was the trial of mowing machines. Their various excellencies were examined into by a competent committee, and reported upon by them. The appearance of the ground after the grass was raked off showed that better mowing had been done than in years previous, when the work had been done by hand mowers.

Although this Market day in some respects must be set down as a failure, still under more favorable circumstances the result would have been different.

"Confidence is a plant of slow growth," and it will take *time* to establish these days upon a permanent basis. The immense benefit resulting to farmers by dealing directly with the consumer, and consequently the same result to the consumer by purchasing of the producer are too obvious to require argument in their support; and although at first there may appear a want of faith in the movement—producers not bringing their wares and animals to market, and purchasers being backward in buying—still we trust the beginning heretofore made will be followed up with vigor and confidence, until the Essex County Market days shall become a fixed institution.

For the Committee, SOLOMON NELSON.

Georgetown, July 1st, 1859.

THE TREADWELL FARM.

The Committee on the Treadwell Farm would report :—That they have visited the farm during the past year from time to time, for the purpose of directing such improvements and experiments as might be in accordance with the designs of the donor, and conducive to the best interests of the society and the cause of agriculture.

The condition of the farm is such as to interfere materially with any good system of experimental husbandry. The buildings are still very insufficient, the barn and shed attached being hardly suitable for containing the crops and protecting the cattle of the farm. The manufacture of sufficient manure for the wants of the place, with the present conveniences, is almost impossible. The land is, with the exception of the pastures and a small field adjoining the house, in the lowest possible condition ; and will require a long application of good farming, before it will really warrant any system of experiments on crops, with the prospect of such a return as every careful and intelligent farmer has a right to expect. Your committee would therefore recommend that for the present, the energies of the society be turned towards the repairs of the buildings, and the improvement of the land, preparatory to a series of experiments in the raising of crops.

The Committee have obtained a set of meteorological instruments and tables from the Smithsonian Institute, which have been carefully kept by Mr. Brown the occupant of the farm.

A system of keeping the accounts of the farm has also been adopted, which it is hoped will prove to be useful to all who would employ a convenient mode of farm accounts.

Series of experiments have been instituted in the application of manures to various crops—corn and the varieties of roots.

The amount expended by the Committee in experiments exceeds by about $25 the annual rent of the farm, as agreed upon with Mr. Brown. And they would recommend that the crops obtained from the experiments, be allowed Mr. Brown as a remuneration for this outlay.

The Committee would state, moreover that the condition of

the farm is such as to render an accurate account of the experiments difficult to be given for the past year. The work that has been performed is chiefly an introduction to a complete system, which it is believed will be interesting and valuable. A foundation for this has been laid without expense to the society, and in such a manner as to indicate that much may be done in the future, without any use of the society's funds.

The erection of a new barn is all important. Liberal gentlemen in the County have already subscribed for the purpose. And the Committee, according to a vote of the society, have determined to use such timber as may be found on the farm, for the benefit of the necessary building.

The Committee would, in conclusion, bear testimony to the fidelity and industry with which Mr. Brown has attended to their recommendations, and to the economical care with which he has conducted the business of the farm.

DANIEL ADAMS,
R. S. FAY,
J. W. PROCTOR,
A. W. DODGE,
GEO. B. LORING,
WILLIAM SUTTON,
} FOR THE COMMITTEE.

Salem, Nov. 15, 1859.

ESSAYS.

The Committee on Essays and Farm Accounts, report that five essays have been presented for premium—viz :—

On the Potato Disease and the best mode of conducting experiments to ascertain its cause.

On Muscle Bed.

On Underdraining.

On the Onion Crop and the enemies which threaten its destruction.

On Horse and Ox Shoeing.

Your Committee regard all these essays as furnishing useful

suggestions on the subjects which they treat, but in view of the great importance and value of the potato crop, and esteeming the suggestions in this essay of great practical value, they recommend that the premium of ten dollars be paid to the author, and that the same be published in the Transactions of the Society.

The essay on Horse and Ox Shoeing contains valuable hints on a subject too imperfectly understood and practiced. In the hope that it may be useful in awakening attention to an improved mode of shoeing these useful animals, your committee recommend that a gratuity of six dollars be paid to the author of this essay, and that the same be published in the Transactions.

No statement of actual farm accounts has been presented to your Committee. By order of the Committee.

JAMES H. DUNCAN.

Salem, November 15th, 1859.

PLAN OF A SERIES OF EXPERIMENTS FOR INVESTIGATING THE POTATO DISEASE.

BY WILSON FLAGG.

It is about fifteen years since the first general appearance of the potato disease. During this time the whole civilized world has been investigating its causes, its nature and its remedy.—This disease is marked on its first approach by a slight discoloration of the surface of the tuber, gradually penetrating its substance, and causing a hardness of the pulp, most apparent after the potato is cooked. This hardness bears some resemblance to that of a tuber of the preceding year's growth, which is sometimes found in the hill among the new potatoes. No amount of boiling will soften either the one or the other; though they will yield to a greater degree of heat than 212° in an oven, and become softened. Throughout the diseased substance there is a brownish or rusty hue, sometimes in irregular streaks, and sometimes uniformly blended with the mass.—

The final stage of the disease is a softening of the part, which seems to be identical with its corruption, when it is almost black. Such are the superficial appearances of the disease; its nature has not been yet ascertained. Several theories have been put forth to explain it; but they are all unsatisfactory to the reason and common sense of impartial inquirers.

Among the theories which have been advanced to explain the nature and causes of the disease, four have attracted public attention and have been warmly advocated by their respective authors. The fungus theory, which I will name first, supposes that the rot is caused by inoculation with the *spori* of a certain species of fungus, which, like a true parasite, penetrates the substance of the tuber, and thrives upon its nutritious properties. This fungus has been supposed to resemble the red rust that attacks the leaf and stem of Indian corn and other cereal plants. It is now believed to be the consequence, not the cause of the disease, being always developed subsequently to the gangrene of the tuber.

The theory put forth by Mr. Smee, an English experimenter, maintains that the disease is produced by an insect. This hypothesis has been advocated by several writers, who have stated many important facts to corroborate their views. Mr. Smee found, however, that when he placed the insect that infested the unsound tuber upon one that was sound, they would not remain upon it, but left it. Hence it is to be inferred that they will not feed upon the potato unless it be in a corrupted state. It is also worthy of remark, that the different advocates of this theory have attributed it to several different species of insect. This fact lessens the probobility that their suppositions are correct. Indeed, the same reasoning that has been used to controvert the fungus theory, renders it probable that the insects do not produce the disease, but they are attracted, if not generated, by the corrupt matter which is consequent upon it.

Mr. Bradford's hypothesis, which, if correct, explains the cause, rather than the nature of the disease, supposes it to be the consequence of the "running out" of the plant from the effects of old age. The tubers he considers not as the literal offspring of their predecessors, but as continuations of the individual from which they were originally derived; as grafts

are but continuations of the parent stock, and not its literal offspring. Hence, as scions are supposed to suffer the effects of old age at the time when the original tree from which they were taken would suffer these effects, the tubers of the potato are supposed to be liable to a similar decay after an indefinite period of time.

There is some fallacy in this idea. Nature's laws respecting animal and vegetable propagation are far from being identical; and they differ in this important respect—that while animals can be propagated only by the union of the sexes, plants may be propagated both in this way and in another way which is independent of sex. The assumption, that a graft or a scion is a continuation of the tree from which it was taken, is true only in a qualified sense: it is really but a continuation of the multitude of plants sustained by the tree in one vast community, each individual of which dies annually. A tree is a family of individual and annual plants, deriving their nourishment from one common source, and supported in their position by the branches, which serve also as conveyances of nutriment to the millions of plants assembled upon them. Each of these plants dies annually when the leaf perishes, by which it held communication with the atmosphere. Just at the point where each leaf was separated from the branch, is a bud; and this bud together with the recent branch upon which it grows, and the other buds that grow upon it, is the offspring of its predecessor which has now perished. As this mode of propagation is maintained without the union of sexes, so it differs from the sexual mode in always continuing the sex of the plant, if it dioecious. Herbaceous plants which are considered perennial, have the same power of multiplying themselves in other ways besides the sexual manner,—some by tubers, some by bulbs, some by buds or subterranean stems, and others by buds that separate themselves from the plant, as in the Tiger lily.

It would be difficult to prove that the Tiger lily might not be propagated, through all time, by these buds, as well as by its proper seeds. We are not authorized by any experiments, to say that plants may not continue their species by means of buds, tubers and bulbs, in perpetuity. I am inclined to believe, however, that the sexual method is the only one designed

by nature to insure immortality to the species. The propagation by buds and scions, taking place without the union of sexes, must be considered *as the closest kind of in-and-in breeding*, and must be attended, at least under the artificial circumstances of culture, with some of those disastrous consequences, which are known to proceed from sexual in-and-in breeding.

I am not, therefore, prepared to deny that, if Mr. Bradford's theory be incorrect, there may be some truth in his conjectures. In accordance with his hypothesis, that the potato disease is but a natural decay, produced by the old age of the present varieties, as continued through many generations uninterruptedly by the tuber, the remedy, he contends, must consist in raising a new stock from the seed and rejecting all the old varieties.—Yet as the seedlings of potatoes which have been long under cultivation, may partake of the infirmities of the parent, he recommends resorting to the original wild potato, and re-stocking the country by seeds procured from this source.

Similar to the foregoing theory is one advanced by Mr. Pritz, a German experimenter, who believes the disease to be the consequence of a high system of cultivation, or as I would express the idea, of luxurious habits continued through many generations. In this way the plant has acquired a predisposition to disease, which is increased by high culture, and may be diminished by culture of an opposite character. To prove his position, he states that the disease shows itself in a more aggravated form, in proportion as the crop is highly composted, accompanied with a moist soil and atmosphere, and other conditions favorable to the luxuriant growth of the plant. These circumstances he supposes to be productive of a superfluity of water in the sap-vessels of the plant, thereby giving origin to the disease. Hence the disease commonly shows itself in the stalk before it affects the tuber; and the *fungal* growth which ensues, is the consequence of the corruption of the tuber.

The same injurious effects, I would add, are well known to follow long continued high manuring, both of fruit and forest trees, especially in the early stages of their growth; and there is probably a limit in all natural productions, both of the vegetable and animal kingdom, beyond which "improvement" suddenly stops, and degeneracy ensues. Hence the "running out"

of established varieties of artificial fruits, and of improved breeds of domestic animals, which must occasionally be crossed with a less improved stock, to restore their vigor of constitution. As a remedy for the potato disease, Mr. Pritz recommends that the tubers be planted in a soil which is well drained, and in which the fertilizing materials have been thoroughly mixed with the soil during a previous season; and he prefers a virgin soil to one made equally rich by artificial methods.

Beside the theories above stated, various remedies and nostrums have been proposed, some of which afford rational subjects of experiment. One of these recommendations is early planting, which has been considered favorable to the production of a healthy crop. Others recommend ashes, lime, and various alkaline substances, as remedies, having observed some good effects resulting from the use of them. These and several other appliances and methods of cultivation, though they do not insure a sound and healthy crop, may be found to diminish its liability to be diseased.

We cannot reasonably feel sanguine of discovering a *specific* for the cure or prevention of the disease, nor of ascertaining the *remote* cause of it. We may be able to guess at some of the *proximate* causes—such as high manuring and general luxurious treatment; (for after the predisposition to disease is created in any subject, a thousand different agents may act as proximate or exciting causes of its development)—while its remote cause still remains hidden. The potato disease probably resembles certain diseases of the animal system, whose origin is involved in mystery, whose nature is but partially understood, and whose remedies serve rather to assuage than to cure them. Such diseases may come upon an individual, in spite of the most rational employment of those measures of prevention which usually render one secure from its attacks. Still experience has proved that the precautionary measures recommended by physicians are *general safeguards;* and that the disease, whatever it may be, will attack a smaller proportion of those who attend to these sanitary rules than of those who neglect them.

The same course of reasoning will apply to the potato disease. This plant, without doubt, will always be liable to its attacks; but careful inductive experiment, carried through a con-

siderable series of years, may bring to light certain facts, upon which a system of sanitary rules may be established; and by attending to these rules in the cultivation of the potato, we may thereby obtain, on the average, more abundant and more healthy crops than we could if these rules were neglected. We may learn the different effects of a wet and a dry soil, of a new and an old soil, of a rich and a mean soil: of a warm and a cold situation, of the north and the south side of a declivity; and of many other conditions, which it is needless to enumerate, since they could be multiplied to infinity.

Many facts of important signification have already been ascertained by the experience of intelligent cultivators, showing that certain modes of tillage lessen the ravages of the infection and reduce its chances of recurrence. Each of these facts constitute one step in our progress towards the great point to be attained. Still it seems to me that this agricultural problem will be found to resemble those mathematical problems by every process of which we approximate nearer to the desired result, but can never fully read it. Though we may never ascertain the true character of the potato disease, nor learn the means by which we may invariably defend the plant from its attacks, we may nevertheless, by carefully recording the details of a series of philosophical experiments, and by generalizing all the facts thus developed, approach so near to the end desired as to produce a potato crop with no more chances of failure than of losing an Indian corn crop by summer rains and September frosts. By the careful observation of such facts, obtained from experiments extended through a series of years, we might gather a sum of information, the value of which would more than balance the expense of conducting them.

It is a knowledge of the remedies or preventives of the disease which it is desirable to seek; the nature of it is of less importance, except as a knowledge of it might point out the means of extirpating it. The wide prevalence of the disease, which occurs simultaneously in different parts of the country, and in different countries widely separated, proves that its cause is universal in its character. It does not commence in a particular district, and gradually extend over the surrounding country. Its sudden and simultaneous occurrence, as distin-

guished from anything of a progressive character, proves it to be no travelling epidemic. All this favors the idea that it is a constitutional disease of the species,—whether it be the consequence of "running out," or of any more hidden and mysterious cause.

From the Report of the Committee of the Massachusetts Legislature, "On the Diseases of Vegetation," it appears that out of a large number of communications relating to the potato disease, from individuals claiming the premium to be awarded to the person who should discover its remedy, twelve of the experiments recommended, which were alone considered worthy of being tested, were carefully tried on the State farm, but "all failed to give any such results as would entitle them in any way to the confidence of the community, or as answering the requisitions of the law." The Report of this Committee is an excellent specimen of philosophical reasoning, and ought to be carefully studied by those numerous individuals who can not distinguish between a principle and an hypothesis, or between a conclusion based upon assumed premises and one based upon facts. No man can be a good experimenter who has not a logical mind, though he may be the best practitioner of his art in the world. The best practice may be empyrical, but experiment is worthless if it be not philosophical. It is the want of this logical faculty that leads so many persons to believe they have discovered the cause of a thing, when they have only discovered one of its accompaniments.

The difficulties which most men encounter when they are experimenting on any subject, are what Lord Bacon terms "the idols of the mind." An individual discovers a peculiar symptom, for example, upon the vine or the tuber of the potato plant, while it is affected with disease; and this gives rise to a conjecture, and upon this conjecture he builds a theory. He then commences a sort of special pleading for his own hypothesis, and ends in convincing himself that he has made a great discovery. His error proceeds from using his conjectures for his premises, and building his system upon them before he has established his facts. It is in this way that men are constantly deceiving themselves and the public.

This is not the way to investigate truth: it is the way which

has always been used to establish error. It leads one to set aside all evidence unfavorable to his assumption, as a corrupt judge rules out of court the evidence of those witnesses who are opposed to his own designs. Many very erroneous theories have been built up by this method of *establishing a position.* Their advocates, however, often perform an important service to science, by stimulating others to examine the opposite side; and by their competitive reasoning and experiment, a great deal of useful information is brought to light.

The Legislative Committee have pursued their investigations in a true philosophical spirit, and with a full comprehension of all the difficulties of the subject. But this investigation cannot be successfully pursued by the most capable persons, unless they can be furnished with a motive to devote a great part of their time and attention to it. The best course would be to authorize the committee to select some competent individual, and offer him a pecuniary inducement to attend to a series of experiments in relation to the subject, during a certain number of years, making it his duty to superintend all the operations, note the symptoms, the beginning and the progress of the disease, and all the circumstances attending it, and make semi-annual reports.

This scheme is not proposed with any idea of discovering a certain and infallible cure for the disease. The experiments, as I have already remarked, must be expected to lead only to an approximation to the desirable end, but at the same time to open the way to the discovery of many valuable facts, that bear relation to the general diseases of plants, tending thereby to promote one of the least known and most useful branches of agricultural science. In accordance with the preceding views, I present the following synopsis of a plan upon which a series of experiments might be based :

I. The first series might be designed to ascertain whether the disease be contagious or non-contagious. If contagious, it may be communicated by planting the tuber in a soil in which a diseased crop was raised on the preceding year. It may also be communicated by the use of compost in which some of the affected tubers have been mixed. In order to ascertain whether this hypothesis be correct, we should institute the following tests :

Let a field, containing half an acre of virgin soil, be prepared and divided into two equal sections, taking care that the soil of the whole field be uniform and equally exposed to light and moisture. Fertilize one of these sections with a material containing a large mixture of diseased potatoes reduced to compost. Let the second be fertilized with a similar compost, except that it shall contain no diseased potatoes, nor any substance that is affected with the virus. Plant each section with sound potatoes of the same variety and from the same lot, after washing all the seed in some disinfecting fluid, to remove any virus that may exist on the surface of the tubers. Take pains to cut open every tuber before planting it, to see that it contain no visible marks of the disease, and reject all that do not appear to be sound.

If the crop in the first section, which was manured with a compost containing virus, be evidently more diseased than the crop in the other section, we have some presumptive evidence that the disease is contagious. A few repetitions of the same experiment, with invariably similar results, would establish the point beyond doubt. But it would still remain to be proved that there are not many other ways by which the disease might be engendered. The communication by contagion might still be but one among a great number of exciting causes, not bearing any relation to the original cause of the disease.

II. The predisposition to disease may be hereditary. Of this there seems to be no good reason to doubt; but admitting it as a fact, may we not by a series of careful experiments, discover the means by which it is most likely to be communicated from one crop to the succeeding one? In order to put this supposition to the test, let a field of uniform soil and situation be divided, like the foregoing, into equal parts; then select from the same kind and the same lot of potatoes, one portion entirely sound for one division, and another portion of diseased tubers to be planted in the other division. Let the ground be prepared and manured in the same way for each, and let the two crops be cultivated in exactly the same manner. The sound potatoes would probably yield the largest crop; but the object of the experiment should be to ascertain whether a diseased tuber necessarily yields a diseased product.

The preceding experiment may be modified in the following manner: Let the two sections of a field, prepared as before, be planted each with sound potatoes of the same variety; but let the seed for one section be selected from a crop which has not manifested the disease, or at least only in a very slight degree; and let the seed for the other section be also sound, but selected from a crop which was very much diseased. Take notice whether, under these circumstances, one is more affected than the other with the malady. It may turn out—though such a supposition is very improbable—that it is best to select seed potatoes from among the sound ones of a diseased crop, on the supposition that they must possess the property of resisting disease in a remarkable degree, and might communicate this power of resistance to their offspring. We know that such a principle exists in the animal constitution, to a certain extent; but this is not a problem to be solved by reasoning: it must be settled by experiment. It is important, however, to ascertain whether a crop produced by sound potatoes from a sound lot, is more likely to be exempt from the malady, than one produced by equally sound potatoes from a diseased lot.

III. A third course of experiments should be designed to ascertain the effects of certain modes and materials of fertilization, in diminishing or aggravating the malady. It is very generally believed that both high manuring and manuring with unfermented or unassimilated materials, by causing a morbid luxuriance of growth, produces an earlier appearance of the disease and increases its ravages. This opinion is based on the general experience of cultivators, and has been proved in some instances by careful experiment. The subject is a very important one, and opens a wide field of inquiry.

The true method of instituting a course of experiments under this head, must consist in selecting, as far as practicable, a similar soil for each crop, and a new soil would be preferred for the first season. In this case we can with more certainty determine how much of the malady, or of the exemption from it, is due respectively to the fertilizer, than if the soil, though apparently uniform, had been in parts previously tilled for different crops. On the succeeding year the same fields should be retained and divided in the same manner for the different branches of the experiment.

Under this head would also be included all tests of the different kinds of native and artificial soil,—determining the effects of an old soil repeatedly tilled, compared with a new or virgin soil ; of a moist compared with a dry soil ; and the different effects respectively of peat land, of salt marsh, of alluvium of various kinds ; of grass land lately turned up, of wood land lately cleared ; of calcareous, siliceous, and all other natural descriptions of soil.

IV. Other experiments might be made to discover the effects of different modes of mechanical tillage, independent of manuring. Observe the different effects of frequent hoeing, of moderate hoeing, and of the entire neglect of this operation. This may be considered a matter of considerable importance, because tillage is to be regarded as one of those luxurious appliances, which, in connection with high composting, may be supposed to have injured the health of the plant. It is, therefore, a rational subject of inquiry, to see whether an entire neglect of tillage, as well as of manuring, would serve in any degree to restore the original vitality of the plant, by allowing it, as it were, to run back into a state of nature. Many years' experiment, however, with the same seed, would be necessary to show whether any such recuperative effects would follow from this neglect.

In accordance with these views, I would recommend to try the effect of planting the tubers, without manure—using several good varieties,— in wild pasture land, or in a recent clearing, in dry soil among the bushes, and leaving them, after they are planted, entirely to nature. Plant the same seed, year after year, in this manner, taking annually a portion of the product for experiment in tillage land, and see whether the seed thus produced might not yield, on the average, more healthy and vigorous crops. The product of the tubers when planted in wild land, under these conditions of entire neglect, should be used exclusively for seed. The yield would probably be too scanty to be profitable for any other purpose. If such an expedient should be followed by the improved health of the plant, it would not be an impracticable project to resort exclusively to this method of procuring seed. This leads us to consider other

V. Experiments in relation to different methods of procur-

ing seed. Beside the one suggested in the last paragraph, various methods have been recommended, by which the properties of seed potatoes might be improved, or an improved crop obtained by adopting certain principles of selection. It has been frequently advised to use for seed potatoes raised in a distant part of the country, or in a foreign country, and in a soil and climate differing essentially from our own. In order to carry out this experiment in full, we should try the different effects of seed obtained in the one case from the extreme southern limit of the potato culture, and in the other case from its extreme northern limit. How would two crops of Chenangoes differ, under the same conditions of soil and culture, the seed for one crop being raised in Newfoundland, and for the other in Florida? It would be no idle use of one's time or labor to try a course of such experiments, and to observe the comparative thrift and soundness of the two crops, in similar soil and situation, and under similar circumstances of culture.

Mr. Pretz recommends raising our crops from carefully prepared tubers. He maintains that "as this plant is unable to produce seeds, when in a degenerated state, we must resort to the tubers which have the faculty of propagation (of ripening their balls). After selecting the best of these, expose them to the air, sheltered from the rays of the sun, till they become thoroughly dry; then bring them into a room free from frost and completely cover them with dry ashes of peat or mineral coal. Plant the seed thus preserved, without being cut, in well prepared and deeply cultivated ground, properly drained. A field that has produced several crops since last manured will be best for this purpose, and no manure should now be applied." He thinks that by repeating this process annually, in a few years a perfect cure might be expected. Though we may entertain no such hopes, we may agree with the author of the suggestion that it is one of the numerous methods of improving the properties of the potatoes which are to be used for seed.

Might we not take a hint from the practice of florists, who in order to obtain fine flowers, expose the bulbs and roots to a drying process, which in some sorts deprives them of all moisture and apparent vitality? If it were possible to dry the tu-

ber of the potato plant to such an extent as to deprive it of all moisture without injuring the vitality of the buds or sprouts—might we not reckon upon some alterative effects which would improve its productive properties? Although it does not seem to be the design of nature that the tuber in its wild state should undergo such a process of desiccation, it is not improbable that as a course of regimen for the cure of disease it might be attended with advantages.

Some years since it was advised to resort to seedlings obtained from the ball. This having been repeatedly done without apparent benefit, Mr. Bradford recommended to procure seedlings raised from the balls or the tubers of the wild potato plant. This recommendation is certainly worthy of trial, and may be attended with triumphant results. But should the seedlings thus procured produce a diseased crop the hypothesis that attributes the potato disease to the effects of old age must be considered incorrect. The remote cause of the disease must then be regarded as enveloped in mystery. But the subject would still be worthy of careful investigation of its exciting causes, by guarding from which we can alone expect to secure the health of our crops.

It has been observed that a crop is more likely to be affected with the malady if the blossoms fall without producing seed. All the tubers of such plants should be rejected as seed potatoes, which should be carefully selected from the product of those vines which matured their bulbs. This may be another expedient for increasing the chances of a healthful crop, as well as for increasing its abundance.

VI. Another course of experiments should be made to ascertain the different degrees of liability to the disease that exists in the various sorts. It is said there are upwards of varieties of the potato. These, it is well known, differ exceedingly in quality, and the best varieties commonly yield the least abundant product. Some sorts are hardly worthy of cultivation, except for swine. It is not probable that all these are equally subject to the malady. Not only ought this point to be ascertained by experiment, but the different varieties should be classified, in order to determine whether the disease is mildor or otherwise in those of a particular character; in those for in-

stance, of a certain shape or color. We should learn whether the white-meated sorts are more liable to be affected than those with yellow, red or blue meats; and whether the color of the meat has any connection with a constitutional liability to the disease or exemption from it. I think I have noticed that the yellow-meated kinds are not so badly affected as those with white meats; but the former are not so good for the table as any of the other sorts. If, however, a superior degree of exemption from disease be connected with this yellow hue of the pulp, there is good reason for endeavoring to improve the quality of the yellow kinds, by raising seedlings from them.

It is not unlikely that there may be some constitutional predisposition to disease which is greater not only in some particular sorts, but perhaps in those of certain color of the pulp;—as in the human system there is a constitutional liability to pulmonary complaints in persons of a peculiar complexion. I would, therefore, experiment not only with individual varieties, but with *classes*,—carefully noting the liability of the white meats compared with the yellows, the reds and the blues, and learn whether any color, on the average, is more or less subject to disease than the others.

VII. The comparative advantages of late and early planting have not been overlooked, and they are worthy of still further investigation. I was informed last summer by a neighbor that he had cultivated a certain early variety of the potato upwards of twenty years in succession for the market, and had not observed that they have been affected with the malady. Many experiments have been made which have resulted in favor of early planting. This fact might be explained by supposing that the plants of an early crop arrive at the flowering period when the weather and season are favorable to vigorous health and development, and at that stage of their growth when the disease is most likely to affect them. Hence we may explain why the early planted crops are more likely to produce balls and to ripen their seeds.

The following experiments might be made with the view of obtaining information under this head:—Plant one field with potatoes forced in a hot-house calculated for the earliest possible maturity. Plant another field as early as practicable with

potatoes which have not been forced. Plant a third field with the same sort at a late period. It would be advisable to watch the effects of the forcing process upon the health of the product. Such a process might serve to aggravate the tendency to disease. A considerable amount of information in regard to the effects of early planting might be gathered from the experience of market gardeners.

VIII. Some advantages may be found to result from planting the potato in succession after certain specified crops. Some kinds of plants may affect the soil favorably, and others unfavorably with respect to the healthful growth of the potato. We know that this principle of rotation must be observed in planting the most of our crops, if we would secure both a healthy and abundant product, and the knowledge and observance of certain rules of rotation constitutes an important part of the science and practice of agriculture. We may, therefore, not unreasonably expect to reap some valuable information from experiments of this class, relating to the potato culture. It is highly probable that the soil, immediately after a certain crop, may be favorable to a healthy product, and that these effects may be sufficient to make it expedient to raise the potato invariably in succession with some other vegetable,— it may be some one of the cereals, it may be clover or peas, or it may be after a fallow.

It would be wise, therefore, to institute a course of experiments under this head; planting potatoes after each of the most important articles of cultivation, and repeating them until we have obtained satisfactory evidence of their effects. It is important also to learn the effects, in detail, of planting potatoes year after year in the same field.

IX. Meteorological influences are mostly beyond our control. But, though an extensive crop could not be sheltered—if by sheltering a small part of a crop from cold rains, heavy dews and late summer frosts, we found that the soundness of the tuber was preserved,—this sort of shelter might be used in future just to the extent required to secure a few potatoes for seed.— Experiments under this head should be instituted for their theoretical, rather than their practical value. If the malady have a meteorological origin, it would be important to ascertain the

fact, even though the remedy should be beyond our reach. Such a discovery would at least put an end to fruitless investigations to find out other causes.

There is one branch of experiments under this head that might be practically useful. I allude to such as have reference to the advantages that might accrue from that sort of protection which is afforded by a wood, surrounding the field on all sides, or merely bounding it on one, two or three sides. The different effects proceeding from the shelter of evergreen and of deciduous woods should also be compared. If the disease have a meteorological cause, it is possible that a dense and lofty wood might possess the power of averting this influence, in some degree, from a small tract, surrounded by it, or in close proximity to it.

Lastly, it would be expedient to devote some time to experimenting upon the value of different nostrums, proposed, and likely hereafter to be proposed by their respective authors.—The most of these, however, would probably come under one or the other of the preceding heads.

Here then is a series of nine different classes of experiments, each including a large number of individual experiments. A great many that are new and valuable would probably be suggested by the experience of one who should be employed in reducing them to trial. Such an undertaking could not fail to develop information sufficiently new, both in its details and in the classification of these details, and sufficient also in amount to warrant the expenditure of public money for this purpose. These experiments while gradually unfolding a variety of measures by which we might lessen the ravages of the potato disease, would serve also to bring to light many valuable facts concerning the general culture of this plant.

This is no whimsical project of general experimental farming, in which nobody knows precisely what ought to be done, or what will be done. It is a definite scheme, confined exclusively to a single crop, and having reference solely to the attainment of a certain kind of information. The expenses of conducting such a course of experiments could not be very great, because they would be nearly balanced every year by the value of the crop. A farm consisting of five or six acres of varied soil and sur

face would be sufficient. A few hundred dollars per annum would defray the expenses of superintendence, and the crops would pay the cost of labor, both of men and animals.

HORSE AND OX SHOEING.

BY DAVID STILES, JR.

The subject of horse and ox shoeing is intimately connected with agriculture. Farm operations cannot be carried on among us without shoeing. Yet this department is almost entirely neglected—no definite knowledge on the subject is laid before the public in a way adapted to produce improvement. From what I have read of the advance of shoeing horses in England, I am compelled to believe that the art was better understood there as a general thing, a century ago than it is at present in this country. The English, for many centuries, have been lovers of good horses. Their parks and hunting-grounds, their race courses and stage routes, their hackney coaches and livery stables, have brought out many of the best horses; and as a people they have done more than any other to diffuse a thorough knowledge of this useful animal.

Shoeing is a necessary evil. No hoofs are made better by shoeing. Nature never designed that animals should be shod. In many parts of the world where horses are much used, the art is not known. On our western prairies, there is but little or no need of shoeing. But among us, where the soil is gravelly and hard, shoeing must be practised, and it may be done without injury to the feet. When, however, it is improperly executed, it is productive of more evil than is generally supposed. Among these evils are contraction, inflammation, founders, sprains, ringbone, stumbling or tripping, over-reaching, and sprung-knees; any one of which renders the horse less valuable and sometimes dangerous to the rider. I do not mean to affirm that these evils are *always* brought about by bad shoeing, but that they are oftener than is supposed. The smith pretends that he has done all that can be done to give relief to the animal or to rem-

edy the evil. The owner does not pretend to know anything about the matter. But experience soon teaches that some further method must be adopted to help the trouble. But what to do next is the question in the mind of the smith. He blunders perhaps on another plan, and with like success. All the while the horse is growing worse and losing his flesh, and the owner his work, when if the smith had known at first the proper treatment and how to apply it, both animal and owner might have been saved much pain and expense.

No class of mechanics need a more careful education for their calling than smiths or farriers, but as a general thing it is the most neglected. The son of the wealthy farmer is sent to school and soon looks higher than a smutty black-smiths shop. But the poor boy is driven there to gain a livelihood, and if he wishes to learn the trade and become some day his own master, he is obliged to learn it of one who knows but little himself on the subject. We sometimes hear people complain of the English laws in regard to apprenticeships—six or seven years to learn to shoe a horse is too long, say they. Now for my part, I would willingly have a son of mine serve that time to learn this important and difficult trade. But when we take into consideration that many of our smiths shoe horses and oxen, iron wagons and other carriages, and in addition make horse nails which in England is a trade of itself, we have an array of trades combined that it would take the best part of a life time to learn. The wonder is that we are able to do so many different kinds of work, and yet do them so well, proving that should there be a division of labor here, as there is in the old country, we should perhaps be able in a short time to outstrip their very best workmen.

But to become good horse-shoers, we must learn the anatomy of the foot of the horse. Few smiths understand its structure or the laws that govern its health, and the violation of which sooner or later produces sad consequences. I will here mention a very common error among our smiths, and that is, the neglecting to dress down the sole of the foot at shoeing. The wall or rim, which is about three eighths of an inch in thickness and extends all around the outside of the hoof, is pared down without stint, while the bottom or sole is left untouched,

or if pared at all it is done in a bungling manner. The foot of the horse in a wild or unshod state, is constantly dressed or scoured on the bottom. Though the rim receives most of the weight (as may be noticed in the print of the colts track before being shod) yet the sole and frog are subjected to a continual wear, and for this wear nature makes provision. Now when the animal is shod, this dressing of the sole in the natural way ceases : and not only so, but foul substances collect and are retained there by the shoe, producing a rotten appearance under and around the web of the shoe. And when the shoe is suffered to remain on for a long time—especially in warm weather, maggots have sometimes been bred, which have penetrated the tender portions of the frog, and nearly destroyed its health and vigor. In such cases, remove the shoe, and turn the horse out to pasture, and these excrescences will disappear.

Just so long as the horse is shod, must a judicious paring of the sole and the corners of the frog, near where the shoe comes in contact with it, be kept up. This can best be done by an English shave, the end of which is shaped like an iron used at saw-mills to mark the measure of boards. With this, only a few moments is needed to give a thorough scraping, but if the shovel-scraped buttress is used, unless great care is exercised, it will not only penetrate through the sole in some places, but leave others entirely neglected. If the shoe be properly made, not too thick at the heel, the frog will need no trimming, except as before mentioned. Many persons imagine that the frog must not come in contact with the ground ; but this is a mistake. That Being who made the horse, placed the frog as low in his foot as any part of the hoof. It thus acts as an elastic wedge to give life and health to the foot. And whenever it is in effect removed from its natural position by thick high heel shoes, it shrinks away, becomes thrushy, loses its functions, and contraction of the whole foot follows. I well know that those horses that put their fore feet out forward in standing—caused by hard driving or excessive graining—will, for a few months, go better in thick-heel shoes. This elevating of the heel relaxes the cords that pass down the back part of the leg, and over the shuttle bone to the coffin bone. And if the health of the frog could be preserved in this elevated position, all would be

well. But it cannot be, and when its elasticity is lost, other parts of the foot and leg suffer with it. The evil may be remedied by turning up a portion of the shoe like a calk. Where the ground is soft it will settle into it and give moisture and action to the frog and sole of the foot.

SHOES FOR CONTRACTED HOOFS.

In cases like the above, the hoof presents a long narrow appearance and is hollow on the bottom. This is called contraction. Upon such hoofs should be placed a convex shoe, dipping outwards from heel to toe at an angle—if a bad case—of 45 degrees, and less as the case may require. This is the reverse of a dishing of the shoe, which is practised by most smiths for all horses alike, while it is only the flat-footed horse that requires it. Convex shoes may seem to some altogether useless, but I have tried them too long and with too much success to abandon them now. For several years I supposed that they were original with me—as I had never seen anything of the kind—but I have since read about them in old standard works on horse-shoeing, written in England before I was born, and of course must give up all claims to their invention.

SHOES FOR FLAT FEET.

Shoes must be dished for horses with flat feet, for if the foot be subjected to contant pressure, a bruise is the consequence. In such cases it often occurs that the concave process is not carried far enough ; the smith, perhaps, not taking into consideration that the weight of the horse causes the sole to descend. There should be at least the thickness of a cent between the shoe and the sole.

SHOES FOR ALL HORSES

should be of good length and well fitted around the quarters. Here is the thinnest portion of the whole wall, and if the shoe does not come full out to the outside wall, it presses in upon the sole, producing, perhaps, either rupture of the wall called quarter-cracks, or corns and bruises on the sole. More of the weight of the horse comes on the quarters than on any part of the hoof. Special care should be taken that no portion of the quarter be removed by the rasp. A shoe may and should in

many cases be set back, and the toe of the hoof cut off with the point of a scythe, especially when the hoof is flat—and be rasped off smooth. But to rasp the hoof all over, as is often done to make it look well, is very injurious. Apply the rasp no higher up than the clinches of the nails. There is a peculiar enamel covering the surface of the hoof, provided by nature for its protection. The removal of this enamel disposes the wall to dry up and crack, and sometimes even produces inflammation.

SHOES FOR TRIPPING AND STUMBLING

may be turned up slightly at the toe like a sled-shoe, and the hoof pared to receive the part thus turned up. Shoes for stumblers should not be heavy, especially at the toe.

HOOP SHOES.

These are seldom needed except where it is necessary to relieve the heel, as in case of corns or quarter-cracks. They cover too much of the foot and retain noxious matter, and are more unnatural than any other shoe.

CLIPS.

These are substantially reversed calks. I have often seen the wall of the hoof opened up quite a distance to receive them. Sometimes the hoof is so weakened by this means as to produce rupture. There may be cases where they are useful.

TIPS.

These cover only that part of the hoof towards the toe, and are designed to protect the edges of the hoof, while the animal is at pasture. But they should be considered only as impediments. The benefit to be derived from the entire hoof coming to the ground is far greater than any saving of the edges by these tips. If the horse is to remain out but two or three weeks, the ordinary shoes may remain on his feet, provided a little care is used in cleansing the bottom of the hoof—for which the English shave before described is an excellent tool.

SHOES TO PREVENT INTERFERING

should be light and of narrow web, especially upon the inside, with three nail holes near the toe. They should be straight at

the point where they come in contact with the ancle of the opposite leg. The hoof should be pared lowest on the outside to turn the ankle, that the other hoof may pass by clear. Yet if the inside *sole* is not dressed, the wall or rim soon breaks, and the inside is found to be actually lower than the outside. The hoofs of interfering horses are invariably poorest on the inside, and it was by observing this fact that my attention was first called to the importance of a judicious paring of the sole in all cases.

SHOES TO PREVENT OVER-REACHING

should be long and for the forward feet heavy especially at the heels, and for the hind feet light with heavy toes. The hoofs should be well pared at the toe.

SHOES FOR THE TURF.

should be very light, with a web not more than half the ordinary width. Great care must be used that the wall be not cut too closely in paring. No amount of iron or any other substance can take the place of the elastic hoof. I have no doubt that many a heat on a race course has been lost from this cause alone.

CALKED SHOES.

These are for winter use. The web should be narrower than for summer, and so hammered on theinside edge as not to retain the snow in balls. The calks should be short and neat, and standing out slightly at the edge to let out the ball.

SPRING-HEEL SHOES.

For this kind of horse shoe one or two patents have been issued. One of the shoes is of iron or steel, the other of rubber. No one can fail to see that these contrivances must increase the expense of shoeing; but should they not, their complicated structure renders them more liable to get out of order, and to damage the hoof, besides forming receptacles for the filth and mire into which the horse may chance to step. Let us have a sufficient quantity of the elastic hoof of nature's own providing, and then all will be "very good."

Various kinds of horse shoes have been introduced and new modes of attaching them to the feet have been advocated. The

latest novelty in the way of shoes is one with a rim or calk extending around the whole shoe from heel to heel, to be used both for summer and winter. If there were no other objection to this invention it is this—that they must always be of iron, and cannot be sharpened for winter use. Another plan is that of slanting off the heel of the shoe, and the reason given is that the horse may strike the ground more towards the centre of the foot. But what advantage is gained by this is more than I can imagine. Horses that throw their feet far ahead in travelling very fast may thus strike their feet, but generally they do not, while with such shoes they must roll back the hoof, producing severe strain upon the shuttle or navicular bone and cords of the leg. Neither can they be calked for winter or used for draft.

Other methods for fastening horse shoes have been adopted, among which are screws having a welt around the edge of the hoof just above the edge of the shoe, and fastening the welt and shoe together by the screws. The welt being smaller than the lower edge of the hoof retains the shoe upon the foot.

I will now briefly notice some of those diseases of the feet which are more intimately connected with the shoeing of horses. And first

CONTRACTION.

The hoof of the unshod colt approaches nearly to a circle. But after being shod a few years, the hoof grows long and narrow and hollow on the bottom. The frog diminishes in size and becomes hard and dry. In such cases use the convex shoe with low heels, that the frog may come near the ground. This shoe will spread the hoof in a natural way and remove the pressure from the frog and coffin bone, and if the case has not become chronic, a cure is soon effected.

FOUNDER.

The fleshy plates between the coffin bone and the wall of the hoof are liable to inflammation, as they are full of little blood vessels. In a severely contested race these blood vessels become distended or stretched to their utmost tension. And when the weight of the horse is thrown upon them with great violence they are often ruptured and extreme soreness succeeds.

Or if the horse is only heated and then suffered suddenly to cool, either by going into the water or standing where the cold air blows upon him, more or less inflammation and sometimes acute fever are brought on, that prove fatal to the health of the hoof. These symptoms are clearly marked and yet are often taken for those of the cholic. If the trouble is in the feet, there will be a frequent shifting of the fore legs, but no pawing, much less a motion to reach the belly with the head or hind feet. The animal shows an aversion to placing the feet in an upright posture under the body, looks round for a place to lie down, but seems afraid to draw his feet under him for the purpose, and when down lies still. The feet when sounded with a hammer will throb, and on examination will be found hot and feverish. In such cases obtain the services of a good veterinary physician as soon as possible.

PUMACED FEET.

These are so much like what I call weak feet, that, though different causes may produce them, I shall place them together. By inflammation or other causes, the elasticity between the coffin bone and the wall of the hoof is lost, the bone descends, and a hollow appearance is produced on the outside, between the coronet and the toe, while the bottom of the foot inclines to grow flat. Between the sole and wall is a crease nearly a quarter of an inch wide, indicating that the union between the wall and other parts of the foot was not perfect. Horses thus affected may do considerable work, but are unfit for roadsters. Little can be done for them, except to give them a wide web shoe of good thickness. Let purchasers beware of such horses. Look out for those hoofs that are hollowed on the outside between the hair and the toe.

QUARTER CRACKS

are ruptures on the outside wall near the heel, penetrating nearly through in all cases, and sometimes causing a complete separation to the quick or fleshy plates. With such hoofs a bar or hoop shoe is required that the weight of the horse may be thrown upon the other side of them. Then take a plate of iron an inch wide and two inches long, drill a number of holes on each side, and with some small wood screws about a third of an inch long

make it fast on each side of the crack. These plates may remain on till the hoof heals, yet hoofs with these rents cannot be depended on, though they may appear perfectly sound.

CORNS

appear in the angle of the hoof near the heel. They are of a reddish or blood-shot appearance—soft and spongy. They are generally caused by the shoe being worn too long. The shell or wall of the hoof grows over the shoe, thus throwing the weight in upon the sole. This produces a bruise. The horny substance of which the sole is composed is secreted in less quantity, the blood from the vessels which have been ruptured mingles with the imperfectly secreted horny matter, and as this process is going on it soon makes its appearance on the outside. Corns should never be taken out deep, as thereby the hoof is much weakened. Corns, though they do not often produce lameness, are seldom if ever cured. Horses with corns must be oftener and more carefully shod than those free from them.

THRUSH

is a discharge of offensive matter from the cleft of the frog. When the frog loses its functions, either from foul matter being collected and retained by the shoe, or from being raised too far from the ground, or from contraction of the hoof, pus is secreted with the horny substance, or instead of it. For a cure, salt is sometimes used, or any astringent medicine. But first of all, remove the cause that produced the disease; otherwise it will become chronic, and perpetual lameness ensue.

WOUNDS IN THE SOLE OR CRUST,

by nails or stones, produce inflammation. In other words, when any substance is deposited in the quick or fleshy plates, matter is speedily formed which causes extreme pain. This matter being pent up will in a short time work its way around for some distance, and frequently discharges itself at the top of the hoof before its location can be discovered. In such cases take off the shoe, scrape the bottom of the hoof all over to find, if possible, the exact seat of the trouble; notice all the dark spots, and dig them out a little with the point of a knife, and apply the pincers around the edge of the hoof to detect the most tender place.

When the matter is found, it can be worked out at a small hole, either with a crooked horse-nail or a penknife—then fill up the aperture with a little tarred rope or other soft substance. Do not put in rosin, especially when the wound is on the sole, as that being a hard substance often proves as uncomfortable as a small stone. If a cure is not thus effected, probe the wound out again till fresh blood is found; but if this was done in the first place, there will be little need of a second operation.

RING BONES

are sometimes caused by the unnatural turning or twisting of the foot, caused by the paring of the hoof or the make of the shoe, or both. Sometimes a rolling stone or other obstruction, as a snow-ball in the shoe, produces a sprain in the pastern joint, around which is formed a spongy substance, which soon becomes hard like the bone, forming a ring nearly around the joint, This is usually only on one side—generally the inside. The foot is turned inwards, thereby causing the horse to tread upon the outside of the hoof, which soon wears down the shoe and presses it towards the inside. In this case the shoe should be much thicker on the outside and should be set full, and the hoof should be pared down on the inside. When ring bones come on the forward feet, much may be done by shoeing to favor the travel of the horse.

OX-SHOEING.

This subject demands more attention than is generally given to it. Sometimes the sale of a yoke of oxen is lost by bad shoeing, and I have known cattle to sweat in cold weather by crippling on short shoes. It costs much more to keep a pair of cattle in flesh that are poorly shod, besides much loss of time on the road and use of the whip.

No man is fit to shoe an ox who has not served a proper time with a good workman. Even then he will have much to learn —it is practice that makes perfect. The form of the shoe must correspond with the rim or wall of the hoof. Many smiths crook their shoes too much at the heel. When this is the case, they turn the claws inwards, press them together and cause them to swell, producing inflammation between the claws and more or less fever in the whole foot. Shoes that are not punch-

ed properly, cannot be set properly. If, for instance, a shoe is punched *under* at the heel, it must be crowded out over the edge of the hoof to prevent pricking the ox, but if it is punched *standing out*, the nails will run up naturally and the shoe be retained in place. The hoof of the ox varies, as you nail round from heel to toe, from standing out a little at the heel, to straight in the centre and falling under at the toe. And to correspond to this inequality, all shoes for oxen should be punched. These can be set on in half the time and much better too, than shoes that are improperly fitted.

The calks should be short and neat, and well steeled and hardened, especially at the toe. Ox-shoes should be made of Sweed's iron—as should also horse shoes—and contain not less than six nail holes for the fore feet and five for the hind feet—most of the holes toward the toe, as there the hoof is thickest and strongest. In nailing, use a little gouge to cut out under the clinches on the inside claws of the forward feet, to prevent interfering. The importance of putting on ox-shoes of good length, is not so generally appreciated as it should be. If an ox once gets in the habit of treading or rolling back on his heels by wearing short shoes, it will require very long ones to prevent it. As a general rule, the hoofs of oxen should be so pared that a straight edge will fit across the claws, so that the foot may set perfectly flat on the ground.

The foot of the ox is less complicated than that of the horse, and far less liable to disease. By bad shoeing or other causes, the claws are sometimes sprained, producing callous joints resembling ring-bones on horses. Inflamation in the forward feet of oxen from drawing heavy loads on long journeys with short or unsuitable shoes, has sometimes produced a partial separation between the wall or shell of the hoof and the bones of the foot, resembling founders in the horse.

The proper treatment of oxen in the slings cannot be too strongly insisted upon. Few cattle will strive hard in the slings, if they are taken up properly. They stand better to bear about half their own weight, resting the other half, of course, on the slings. If taken up much higher than this, they will be uncomfortable and strive to gain their liberty. If the slings are lower they will not be sufficiently confined to submit

to the fastening of their legs. I use no ropes or straps for this purpose, as they are liable to stretch and to loosen the feet. If then the ox strives, there is danger of his straining the cords and joints—if not to break a leg, as I have known to happen. A twisted chain, covered with leather and made fast round the foot with a small lever, is the best fixture I have ever seen for this purpose.

The slings should be in perfect order in every part. No ox should be confined in them over forty-five minutes. The longer they are in the slings the more they will struggle to free themselves. I have known cattle to leave the slings with bruises and galls which injured them more than the cost of shoeing, and only because of improper management. The shoeing of oxen, as of horses, is unnatural, either with iron or any other metal. Iron, for the health of the feet, may be the worst of all metals, so that Nero's folly in shoeing some of his favorite horses with gold was not, perhaps, so great after all. But taking all things into consideration, iron is the best article for horse and ox shoes, and no other metal will in all probability ever take its place.

After an ox has been shod two or three years—as every observing man knows who has had much to do with oxen—the feet become tender and rotten where the nails have been driven and sometimes so thin on the bottom that he is unable to go at all without shoes. This thinness is occasioned partly by rust or canker, which is indicated by dark spots, especially around the nail holes, and partly by a want of proper cleansing and scraping of the hoof at shoeing.

All oxen that require constant shoeing should, if possible, be turned out to grass at least one month in a year without shoes, that new and healthy horn may be formed, which will add strength and beauty to the hoof. Though the outside may not at once show the improvement, yet before the return of another year it will be clearly observed in the firmness and capacity to hold shoes. The feet of many oxen are so thin and tender that their owners hesitate taking off their shoes and turning them to pasture, fearing they will not be able to get round to feed. But this soreness will soon disappear, as the new hoof forms and hardens over the bottom of the feet.

The ox is the most patient and docile as well as one of the

most useful of all the animals that the All-wise Creator has given for the service of man. Though he has not the sprightliness and intelligence of the horse, yet he bows his neck in humble and willing submission, and endures hardship far beyond our consideration without a sign of complaint. He should therefore be properly shod, well fed, well sheltered, and kindly treated, not only as a return for all the toil he performs, but that his health and strength may be prolonged for still further service.

Dr. WILLIAM SUTTON, Treasurer, in account with Essex Agricultural Society. Cr.

1858.				1858.			
November.	To balance of former account		$1667 81	November.	By amount of Premiums, Gratuities and Mileage awarded by the Trustees		$1299 14
	To State Bounty received		600 00	1859.			
	To amount received at Exhibition, including sale of Dinner Tickets		1155 49	Nov.	By Colman Library, for books, &c		68 72
	To amount received for French books sold		15 00		By Expenses as follows:		
1859.					Exhibition in 1858	805 26	
January.	To amount received of new members		213 00		Dinner Tickets	359 50	
October.	To Railroad coupons, 1 year		42 00		Printing	498 29	
	To interest on loan		18 00		Secretary's Salary	100 00	
	To Bank dividends for October, 1858, and April 1859		491 48		Freight, Postage, &c	63 00	
	To premiums unclaimed		164 42		Attendance	2 75	
					Treadwell Farm	214 72	
							2043 82
					Balance to new account		955 82
			$4367 20				$4367 20

FUNDS BELONGING TO THE SOCIETY.

16 shares	Warren Bank, cost	$1595 40	Cash on hand as above	$955 82
12 "	Exchange Bank, par	800 00		
22 "	Commercial Bank, cost	1471 66		9094 18
7 "	Mercantile Bank, par	700 00	Deduct amount appropriated for Colman Library	491 16
6 "	Merchants Bank, par	300 00		
5 "	Village Bank, par	500 00	Funds on hand 1859	8602 97
3 "	Salem Bank, par	300 00	Funds in 1858	9410 66
15 "	Danvers Bank, cost	1471 25		
Notes Receivable		300 00	Decrease in 1859	$807 69
Essex Railroad Bonds, par		700 00		

SALEM, December, 1859.

E. E. WILLIAM SUTTON, Treasurer

We have examined the above account and the vouchers of the Treasurer, and hereby certify that we find said account correct in all its parts.

SALEM, Dec. 10, 1859.

A. HUNTINGTON, CHARLES KIMBALL. } Auditing Committee.

Officers of the Society,

CHOSEN SEPTEMBER 28th, 1859.

DANIEL ADAMS, Newbury, *President.*

LEWIS ALLEN, South Danvers,
JEREMIAH COLMAN, Newburyport,
DAVID CHOATE, Essex,
JEREMIAH SPOFFORD, Groveland,
} *Vice Presidents.*

WILLIAM SUTTON, South Danvers, *Treasurer.*

ALLEN W. DODGE, Hamilton, *Secretary.*

HONORARY TRUSTEES.

James H. Duncan, Haverhill,
Gardner B. Perry, Groveland,
John W. Proctor, S. Danvers,
Richard S. Fay, Lynn.

TRUSTEES.

Jonathan Berry, Middleton,
Robert Brookhouse, Jr., Salem,
John D. Cross, Ipswich,
Richard Dole, Georgetown,
Thos. P. Gentlee, Manchester,
Joseph How, Methuen,
John M. Ives, Salem,
John B. Jenkins, Andover,
John Keely, Haverhill,
E. G. Kelly, Newburyport,
Joseph Kittredge, N. Andover,
Cyrus W. Lord, Beverly,
George B. Loring, Salem,
I. Osgood Loring, N. Andover,
Andrew Mansfield, Lynnfield,
Lambert Maynard, Bradford,
Royal A. Merriam, Topsfield,
Joseph Newell, W. Newbury,
Henry K. Oliver, Lawrence,
William Osborn, Lynn,
Paul D. Patch, Hamilton,
Edward H. Pearce, Gloucester,
Charles P. Preston, Danvers,
Benjamin C. Putnam, Wenham,
Wm. R. Putnam, Danvers,
Paul Titcomb, Newbury,
D. M. Tukesbury, Amesbury,
Horace Ware, Marblehead,
E. S. Williams, Newburyport,
Enoch Wood, Boxford.

AMENDMENTS TO THE CONSTITUTION,

ADOPTED SEPT. 28TH, 1859.

Article 1. At the meeting of the Trustees in November, 1859, they shall be divided into three equal classes, by lot to be drawn by the President of ten each, and the term of office of the first class shall expire on the day of the annual meeting of the Society in the year 1860; of the second class on the same day in the year 1861; and of the third class on the same day in the year 1862.

Article 2. At each annual meeting of the Society hereafter ten Trustees shall be chosen by ballot, to hold office for the term of three years from the date of their election. The President shall be chosen at each annual meeting of the Society by ballot. Elections to fill vacancies may be at the annual meeting, or at any meeting of the Society specially called for the purpose, and such elections shall be only for the term that may happen to remain unexpired.

Article 3. The Secretary, Treasurer and Vice Presidents shall be elected by the Trustees annually, at their meeting in the month of November.

CLASSIFICATION OF TRUSTEES.

At a meeting of the Trustees held November 15th, 1859, the President, in comformity to the amended constitution, drew by lot the names of the Trustees.

In the first class were drawn—

Horace Ware,	John B. Jenkins,
Enoch S. Williams,	Robert Brookhouse, jr.,
Paul D. Patch,	Andrew Mansfield,
George B. Loring,	John M. Ives,
Richmond Dole,	Paul Titcomb,

whose term of office will expire on the day of the annual meeting of the Society in 1860.

In the second class were drawn—

I. Osgood Loring,	Cyrus W. Lord,
John D. Cross,	Joseph Newell,
Edward D. Pearce,	D. M. Tukesbury,
William Osborn,	Benjamin C. Putnam,
William R. Putnam,	Royal A. Merriam,

whose term of office will expire on the day of the annual meeting of the Society in 1861.

In the third class were drawn—

Joseph How,	Jonathan Berry,
Charles P. Preston,	John Keely,
E. G. Kelly,	Thomas P. Gentlee,
Lambert Maynard,	Henry K. Oliver,
Enoch Wood,	Joseph Kittredge,

whose term of office will expire on the day of the annual meeting of the Society in 1862.

NEW MEMBERS—1859.

Charles W. Adams, Newbury,	John Knight, jr., Manchester,
Luther Allen, Manchester,	John Lee, Manchester,
Alfred Cole, Beverly,	Cyrus W. Lord, Beverly,
George B. Dodge, Hamilton,	Francis S. Lovett, "
William Dodge, jr., Danvers,	William H. Mears, Essex,
Richmond Dole, Georgetown,	James M. Nye, Lynn,
William C. Endicott, Salem,	Henry Patch, Wenham,
John Felt, Salem,	Edward H. Pearce, Gloucester,
Wilson Flagg, Andover,	Frederick Perley, Danvers,
Henry W. Foster, Beverly,	George Proctor, Rowley,
Daniel W. Friend, Manchester,	Edwin F. Putnam, Danvers,
Byron Goodale, S. Danvers,	Stephen Richardson, "
Jacob P. Goodale, S. Danvers,	Daniel, Taylor, South Danvers,
Israel Herrick, Boxford,	Peter Waite, Danvers,
Joseph H. Herrick, Beverly,	Samuel Wallis, "
Henry Hobbs, Wenham,	John K. Wellman, Middleton,
J. A. Hutchinson, Middleton,	Charles H. Weston, Salem,
Edward D. Kimball, Danvers,	Nathaniel Whittier, Andover,
D. Webster King, S. Danvers,	George Wilson, Marblehead,

☞ Any citizen of the county may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the county, and editors of newspapers published therein, are entitled to the privileges of the Library.

LIST OF PREMIUMS, &c.

FAT CATTLE.

Joseph Kittredge, North Andover, first premium,	$10 00
Joseph Hathaway, Marblehead. second pre.	8 00
William N. Cleaveland, Boxford, third pre.	5 00

BULLS OF FOREIGN BREED.

R. S. Rogers, South Danvers, Jersey, first premium.	10 00
Samuel A. Merrill, Salem, Jersey, second pre.	5 00
William Sutton, South Danvers, Ayrshire, first pre.	10 09
Israel Herrick, Boxford, Devon, first pre.	10 00

NATIVE OR GRADE BULLS.

Samuel Carlton, Haverhill, first premium,	15 00
Francis S. Lovett, Beverly, second pre.	10 00
Francis Dodge, Danvers, third pre.	5 00

NATIVE OR GRADE MILCH COWS.

David Merritt, jr., Salem, second premium,	8 00
Joel Hewes, Lynnfield, gratuity,	8 00

HEIFERS THREE YEARS OLD, IN MILK.

Patrick Tracy, Salem, first premium,	7 00

HEIFERS TWO YEARS OLD.

Isaac Porter, Wenham, first premium,	5 00
Henry E. Pearson, Newbury, second pre.	4 00
George Newhall, Danvers, third pre.	3 00

YEARLING HEIFERS.

George Coggswell, Bradford, first premium,	4 00
Benjamin P. Ware, Marblehead, second pre.	3 00

Paul Pearson, Newbury, third pre. - - - 2 00

CALVES.

James Damon, Ipswich, first premium, - - - 5 00
Eben G. Berry, Danvers, second pre. - - - 3 00

WORKING OXEN.

Jacob Farnum, North Andover, first premium, - - 10 00
Joseph Kittredge, North Andover, second pre. - - 8 00
Joseph K. Farley, Boxford, third pre. - - - 6 00
Richard S. Bray, Newbury, fourth pre. - - - 4 00

STEERS THREE YEARS OLD.

Ephraim F. Cole, Boxford, first premium, - - 6 00

STEERS TWO YEARS OLD.

Samuel Longfellow, Newbury, first premium, - - - 5 00

YEARLING STEERS.

Benjamin K. Atwood, Topsfield, first premium, - - 3 00

STALLIONS UNDER FOUR YEARS OLD.

A. S. Pettigrew, Newburyport, first premium, - - 7 00
Walter H. Whittier, Bradford, second pre. - - 5 00

BROOD MARES.

Simeon Bardwell, Andover, first premium, - - 10 00
Joseph S. Leavitt, Salem, second pre, - - - 8 00
Abiel Wilson, North Andover, third pre, - - - 6 00

FARM AND DRAFT HORSES.

Horace Ware, Marblehead, first premium, - - - 10 00
Daniel Richards, Danvers, second pre. - - - 8 00
David Knowlton, Essex, third pre. - - - - 6 00

COLTS FOUR YEARS OLD.

William Peters, North Andover, first premium, - - 7 00
George M. Teele, South Danvers, second pre. - - 5 00

COLTS THREE YEARS OLD.

Eben S. Poor, South Danvers, first premium, - - 6 00
James Marsh, South Danvers, second pre. - - - 4 00

COLTS TWO YEARS OLD.

Lambert Maynard, Bradford, first premium, - - - 5 00
George Dane, Hamilton, second pre. - - - 3 00

YEARLING COLTS.

Ira P. Pope, Danvers, first premium,	4 00
George Coggswell, Bradford, second pre.	2 00

BOARS.

Charles H. Whipple, South Danvers, first premium,	5 00
William H. Foster, Beverly, second pre.	3 00

BREEDING SOWS.

William H. Foster, Beverly, first premium,	5 00
Allen Berry, Middleton, second pre.	3 00

WEANED PIGS.

Sidney C, Bancroft, South Danvers, first premium,	5 00

SHEEP.

Thos. G. Ordway, West Newbury, best flock of ten,	10 00
Jacob Farnum, North Andover, best Buck,	5 00

PLOUGHING—DOUBLE TEAMS AND MICHIGAN PLOUGH.

Kendall Jenkins, Andover, first premium,	7 00
Jacob Farnum, North Andover, second pre.	5 00
Richard T. Jaques, Newbury, third pre.	3 00

PLOUGHING—DOUBLE TEAMS AND ANY OTHER EXCEPT MICHIGAN

Joseph Goodrich, West Newbury, first premium,	10 00
Richard S. Bray and Nathaniel Ilsley, Newbury, second pre.,	9 00
M. H. Poor & T. G. Ordway, West Newbury, third premium,	8 00
James Cary, Swampscott, fourth premium,	7 00
Abijah P. Fuller, North Andover, fifth premium,	6 00
William Foster, North Andover, sixth premium,	5 00

PLOUGHING—SINGLE TEAMS.

Franklin Alley, Marblehead, first premium,	7 00
Jedediah H. Barker, North Andover, second premium,	6 00

PLOUGHING—HORSE TEAMS.

James Cary, Swampscott, first premium,	7 00
H. B. Allen, South Danvers, second premium,	5 00
Charles E. Abbott, Andover, third premium,	3 00

FARM IMPLEMENTS.

Washington Burnham, improved ox yoke, gratuity,	2 00
Luther Thayer, improved green feed cutter, gratuity,	2 00
W. Wells, Middleton, patent cornsheller, gratuity,	5 00

H. Ware, Marblehead, horse mowing machine, gratuity,	5 00
S. A. Merrill, Salem, Buckeye mower, gratuity,	6 00

UNDERDRAINING LAND.

George B. Loring, Salem, first premium,	15 00
James Stevens, North Andover, second premium,	10 00
William R. Putnam, Danvers, gratuity,	5 00

GRAIN CROPS.

Paul Pearson, Newbury, wheat, premium,	8 00
Samuel A. Merrill, Salem, rye, premium,	8 00

ROOT CROPS.

C. P. Jaqueth, North Andover, potatoes, premium,	8 00
Horace Ware, Marblehead, carrots, premium,	8 00
Willard Howe, Danvers, parsnips, premium,	8 00
Franklin Alley, Marblehead, onions, premium,	8 00

BUTTER.

Mrs. Dean Holt, Andover, first premium,	10 00
Mrs. Sarah L. Ridgeway, West Newbury, second premium,	9 00
Abel Burnham, Gloucester, third premium,	8 00
Ezra Batchelder, Topsfield, fourth premium,	7 00
James Perry, Danvers, fifth premium,	6 00

CHEESE.

William Marshall, Essex, first premium,	8 00
D. L. Goodrich, West Newbury, second premium,	6 00
Rebecca Moody, Newbury, third premium,	4 00

ESSAYS.

Wilson Flagg, Andover, premium,	10 00
David Stiles, Jr., Middleton, gratuity,	6 00
Awarded by the Committee on Poultry,	19 25
" " " " Vegetables,	48 00
" " " " Fruits,	108 00
" " " " Flowers,	36 00
" " " " Articles from Leather,	34 50
" " " " Counterpanes, Rugs, &c.,	35 25
" " " " Fancy Articles, &c.,	48 00
" " " " Bread and Honey,	6 00
Total	$904 00

RECAPITULATION.

FARMS, &c.

Amount awarded to	Underdraining Land	90 00	
" "	Ploughing	88 00	
" "	Farm Implements	20 00	
" "	Essays	16 00	
			$154 00

FARM STOCK.

Amount awarded to	Bulls	$65 00	
" "	Working Oxen	28 00	
" "	Steers	14 00	
" "	Milch Cows	11 00	
" "	Heifers	28 00	
" "	Calves	8 00	
" "	Fat Cattle	23 00	
" "	Horses	96 00	
" "	Swine	21 00	
" "	Sheep	15 00	
" "	Poultry	19 25	
			$328 25

FARM PRODUCTS.

Amount awarded to	Wheat crop	$8 00	
" "	Rye	8 00	
" "	Potatoes	8 00	
" "	Carrots	8 00	
" "	Parsnips	8 00	
" "	Onions	8 00	
" "	Vegetab'es	48 00	
" "	Fruits	108 00	
" "	Flowers	36 00	
" "	Butter and Cheese	58 00	
" "	Bread and Honey	6 00	
" "	All other objects	117 75	
			$421 75
	Total		$904 00

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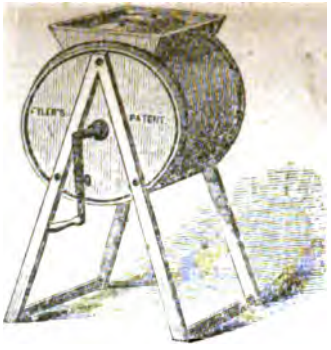

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NOS. 47, 59, AND 63 BLACKSTONE STREET, BOSTON, MASS.

TRANSACTIONS

OF THE

Essex Agricultural Society,

FOR THE YEAR

1860.

PUBLISHED BY ORDER OF THE SOCIETY.
DECEMBER, 1860.

NEWBURYPORT:
WILLIAM H. HUSE & CO., PRINTERS; HERALD OFFICE.
1860.

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AND

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1861, May 8.

ADDRESS,

Lewis

BY JOHN L. RUSSELL.

Mr. President and Gentlemen of the Society:—

When it was announced to me by letter from your Secretary that the Trustees had invited me to deliver the Annual Address, I did not hesitate to accept so cordial and generous an invitation. But I felt that I had no claims on your patience nor could have your hearing in any other way than as a naturalist, and as one whose tastes from earliest recollections have associated me with labors such as occupy your time, and are the employment of your lives. To us both, then, the connexion of animals, birds and plants, with the earth and its products, the laws which govern them, the mutual relations which subsist between them, and the importance of understanding them all, are the same. I do not claim the privilege, nor will you expect of me the possibility of addressing you, as a farmer who speaks to his fellow agriculturists; yet there must be many kindred subjects, which are worthy of my theme and of your attention. That particular branch of Natural History which has engaged my attention the most, is the same which has endeared to many of you the name of Nichols, and others, and which has in the deeper mysteries of its science, (little known to them) revealed to me the importance of studies such as you and I at the present day

should pursue. Let us see, then for a few moments, what we have in common worthy the occasion and the hour.

Your vocation, gentlemen, is with the earth. How mysterious is this mass of inorganic matter upon whose most superficial crust we make a few scratches, and take from thence all that sustains life and promotes, directly or indirectly, our well being! In gratitude to so beneficent an agent should we not know something of its nature, its composition, its laws and hidden powers? To my mind, the capacity to procure, implies the obligation to understand what we can of the nature of those means by which we obtain what we seek. If you are willing to admit this as an axiom,you will place yourselves in the same category with myself, and become pursuers of scientific knowledge in the domains of Nature,—you will become naturalists. I take for granted, then, that you are such by virtue of your occupation, and though I cannot speak to you as the farmer, yet I can address you as those who have in common with me an interest in the same pursuits.

Of all the curious senses with which we are endowed, that of *sight* is perhaps the most distinguished; and the instrument by which we are enabled to exercise this sense, is the human eye. Next in rank, and the minister to the other, is the hand; and to comprehend all the possibilities as well as all the adaptations of a mechanical character which the human hand contains, would well demand long and patient study. The geologist tells us of the time when the now fertile earth was a sterile and barren waste; and the eye is enabled to comprehend the fact. Weak in its native powers to the extent that it wishes to penetrate, the hand supplies the deficiency and forms the lens which shall so concentrate the rays of light upon the minutest particle that it shall betray its proportions,beauty and structure. The eye delighted finds nothing insignificant, nothing in vain, and new worlds are opened to its gaze in everything around. It needs no longer the patient deductions of the geologist to mark the epochs of creation and change—but traces in an earlier and sister science, the signs of gradual organized life. In the white flaky ashes of the farmer's peat fire, it finds the myriad silicious envelopes of minute plants, which, too small for the unaided vision, grew unnoticed hundreds of years ago in every peat

meadow and boggy swamp. In the flake of the anthracite cinder it incontestibly proves the origin of the substance we now call coal. In the smallest scale of what is harder than common rocks around, but which resembles wood, it counts the dots and marks the arrangement of the ducts of trees which long, long ago clothed the deltas of ancient rivers, filled up and obliterated by time. The stain upon the layers of rocks deeply imbedded in solid strata, gives up the mighty secret to the eye, and speaks of periods when vegetation only was traceable in ancient seas.

There is a little book in your library, gentlemen, entitled a "Tour Round my Garden," from the French of Alphonse Karr. It supposes a gentleman of moderate fortune deploring his means of making a foreign tour, such as his cousin of better means was about just then to do. He however resolves to see what wonders he could in his own immediate vicinity, and at last confines himself to his garden. He finds accordingly for the mere looking, objects more wonderful than could be found among the arts and works of nations and peoples abroad. The same is true of you in your pursuits, and the limits of the narrowest farm will be found capable of supplying the means. Only learn to see, to observe, to study and to profit, and how different will seem all the necessary hard labor and drudgery and toil of the agriculturist's life!

When I look around the farms of Essex County, I readily notice how progressive has been the advance over old ideas and antiquated notions, which once so universally obtained. The cultivation of the earth is of three kinds—the traditional, the artistic and the scientific. The first employs all the most approved methods which have been known from earliest days of farming in a country, and carries with it errors and prejudices. Myths and fables do not belong exclusively to ancient religions, but occur equally in old fashioned customs. There is the mythical and fabulous in agriculture as well as in antiquity, properly so called. In certain parts of every country the old fashioned customs still are to be found, and the farmer's occupation comes in largely for its share. The plough, the hoe, the scythe, the kinds of grain sown, the mode of manuring the land, the incorrect inferences about the modes of working it, the average crops

from year to year, all exhibit the myths of olden customs. The internal arrangement of the household, the style of the dairy rooms, the surroundings of the dwelling, the aspect of things about the farm, mark the reign of an age which ought to have passed away. Even the private habits of some farmers,—their social and civil relations, show how little agricultural fairs and exhibitions have done for them. Converse with such men and women, and you will find them full of wise saws and signs, and superstitions; but take no note of the "signs of the times" in which they live. The traditional cultivation of the earth leaves the farm less valuable from generation to generation, until at last emigration to more fertile and virgin soils is the final resort. Agriculture can be pursued, however, as an art, and hold its rank among the most honorable labors of mankind. We honor the artizan who builds nobly and well,—who rears the palace, the capitol, the sacred fane. The names of such men live long after their marvellous works have been touched rudely by the finger of time. It will be equally so with the artist of agriculture, who designs and executes from the rude area of a given piece of earth some fertile and smiling homestead, to bear to distant generations his prospective wisdom. Man rises from the lowest to the highest grade of social life as his mind craves, and seeks, and finds its needs. In no pursuit else do we see this so plainly as in agriculture. The most ignorant, careless and improvident condition is that of the savage. Except in form and cunning, the savage man is no higher than the brute he pursues for excitement or for food. The cravings of hunger prompt him to periodical exertion, and the wild fruits and the game are his food. The selection of certain kinds of seeds and fruits opens the way to their increase, and when he selects such to commit them to the ground, waiting for *their* seeds in turn, he enters the barbarous age. But he must be likewise on the search for other means of subsistence while the seeds are vegetating and the fruits are coming to perfection; and this induces the nomadic habits, such as the Indian of our country is, and such as the earlier shepherd-tribes were. To this condition of man we owe the undoubted origin of many of our most valuable animals and cultivated plants; and the Indian corn, the pumpkin, water-melon, beans, squash, all lay us under

obligation to those nomadic tribes which were found here when the earliest missionaries visited these shores, previous to the colonies established by our ancestry. The barbarous age in agriculture still lingers, and the mythical or traditional, to which I alluded, is no more than its highest form and extremest development. It prompts the idle and the unthrifty to emigrate from their homes to the Far West, in hopes to find in its virgin soils some excuse for negligence and unthrift. But it carries with it its own ruin, and impoverishes in turn, by exhaustion, the most fertile natural portions of the earth's surface, be it the alluvial soils and green mountains of Vermont, or the broad prairies of Kansas! The industry, perseverance and art, which are essential to successful cultivation, with us bring their own reward. It has been long noticed that the physical, moral and intellectual conditions of a people depend on climatic characters; and the harder the soil and more obstinate the earth, the freer and more developed the race which subdues it. The circumstances which develop intelligence, enable intelligence in turn to develop the utmost possibilities; and when man emerges from barbarism, which only feeds and clothes his body, into civilization, he rises to the fine arts, whether in the primeval occupation of agriculture or in those more æsthetical pursuits by which he builds finely and conceives and executes works of beauty and wonder which will for centuries endure.

Agriculture considered in the light of an art is no longer the confined and selfish consideration of how to feed and clothe a family or the dwellers on a given area of the farm; mere labor of the most uncultivated kind can do as much: rather than this little and narrow view, it becomes a branch of national industry, and maintains relations to the prosperity of a country. The object is now to make the most returns from the outlay; to enable the land from year to year to yield five-fold and ten-fold; to swell the aggregate sum of a state's productive resources; to invite capital to invest in its speculations; to convert sterility into fruitfulness; to anticipate exigencies for future time; to leave the world better than it was found, and restore to the primal paradise the portions cursed by the ignorance and selfishness of man. You are familiar, gentlemen, with the name of Downing, who is considered in this country what Paxton is

in England; men estimate him not so much by his knowledge and descriptions of fruits and fruit trees, as by his endeavors to introduce correct ideas of landscape gardening—of the construction of elegant and commodious dwellings, and of a higher style of life in the pursuit of horticulture; to which science he was devoted. The art of agriculture does in the grander modes what landscape gardening does in the narrower; and there can be no reason why the most ordinary farm in Essex county should not borrow something from a higher style, to improve it and enhance its value. The time may be distant when in this country we shall be obliged to cultivate as carefully and scrupulously as is needful in older and more thickly settled countries, yet there can be no excuse for neglecting to obtain the greatest advantages from agriculture, which lie in our power. I remember hearing an educated man, who managed a farm, many years ago, say that he built him a new, fine barn, with many improvements, which at that time and place were considered merely whims and crotchets, because he could not afford to build a cheaper and meanér one, and his old one would not serve his purpose any longer; but I did not then catch the idea of the true economy which he had anticipated in the change. So agriculture as an art, holding its place high among other arts of civilized life, may not commend itself at once to every one, yet such fairs and annual exhibitions as this, attest to the increasing favor the idea is receiving in the community. We discover in the laws which govern the material world, that the circle and the spire pervade all developing objects. The same order which heaves planet and satellite around the central sun, arranges the growth of the stem and the position of the leaves of smallest or most gigantic plant. The track which man progressively follows in his changes from epochs and seasons of his development, brings him back to some starting point in his course. The garden in the sacred Scriptures is spoken of as man's first residence, and it is the garden which is his last and highest effort in civilized life. The farm can be a garden full of all manner of trees and herbs good for food and pleasure. Your most productive farming operations cease to wear the aspect of what would have been the case not many years ago. A well laid out and carefully cultivated gar-

den ranks among the highest efforts of artistical skill. In it the useful, ornamental and essential all combine. In one department may be found the forest trees, in another the fruit trees, another the kitchen stuffs, another herbs and perhaps flowers. Every superfluous plant is there an unsightly weed, and is carefully extirpated. The first settlers in a new country find the forests usurping the soil. They must be removed to allow the sun's rays to reach the earth. To destroy is the first of the circle, but ere it ends harmoniously to re-produce will be essential. An agricultural district, pursuing the art of husbandry, takes as much care to preserve a due balance of relations as does the most skilful gardener. It may be found essential to plant again the very products the axe a century before was brought into play to destroy. Nicety of operation in sowing, weeding, studying the character of the soil, adaptation of this or that manure to this or that field, will pay as well as the same means in the garden. We see this in what is called market garing; and the most ready returns are from such farms as pursue the course which improved husbandry recommends. But no art can successfully be pursued without a science to aid and assist; to prompt the labor and to point out the course. Hence arises science of agriculture, which has enlisted the labors of a Davy, Humboldt, Liebig, and many other illustrious names in Europe beside. It were hardly to be expected in a country like ours, so young, (and yet so old,) but with so many vocations open to its inhabitants, seemingly more honorable, and easier of pursuit than agriculture, (but alas! too often the reverse,) that the same careful solicitude for its advancement should have yet arisen here as abroad. The foresight and prospective wisdom of our greatest and most distinguished patriots have strongly recommended some action in our institutions of learning towards the enlightened pursuit of agriculture. But the precise method of inducing the study of farming as other studies are sought, is a difficult question to solve, and may not be easily pointed out. I do not pretend to offer you, gentlemen, any plan of my own, from ignorance of what has been done, and from inability to devise such. Yet it appears to me evident that the first obstacle in our way is the too common idea that other pursuits are more honorable than that of the cultivation of the soil. There per-

haps is a good deal, too, in the remark that the highest kinds of agriculture are expensive and will not pay; and that artistic and scientific farming will do well enough for the capitalist, who can afford to lose money if needful. I think the root of this mistake lies deeper than this surface view. Agricultural schools and colleges may be well enough, but they seem to me to have objectionable features. I have found among our academies and high schools, for instance, where there is any unusual amount of apparatus, that there generally is the most ignorance of the science it is intended to illustrate. The universal eagerness for office affects every branch of our social industry. The consequence is apt to be the appointment of incompetent teachers and professors; and the very richness and abundance of the apparatus of the establishment might affect injuriously the actual practical knowledge which is sought. The State of Massachusetts provides most generously four Normal Schools in which both sexes are taught "how to teach." From these seminaries issue from year to year intelligent young men and young women, the majority of which go into our agricultural towns and are employed in teaching the rudiments of an English education. Others assume important stations in schools of higher grade elsewhere. The Board of Education appropriates sums of money for familiar lectures on chemistry and other sciences. I have authority for saying, that it is its wish that the relation of the vegetable economy to agriculture should be taught those who are to teach again. I look with much expectation to the future for the diffusion of better ideas on this subject through our common schools. Much of my correspondence with friends who are teachers, shows the tendency of the public mind in this direction. We should then insist on studies among primary schools connected with the science of agriculture. At its very basis lies the science of botany. No science else so refined, elegant, elevating to the mind; none so delicately suited to the feminine tastes. There is no reason why every boy and girl should not know about the very weeds, which look into their school house door, as much as about the multiplication table. Is not the structure, composition, uses economical and artistical of the wood that is consumed in the stove,as worthy an hour's lesson as that of the rivers of countries scarcely trodden by man? In

some towns the areas of school houses are set with flowers and ornamental trees; this is well, provided the arrangement does not abridge the play-ground for athletic and health-inducing sports. But the science of botany needs no such botanical gardens for its apparatus; every dry reed-stalk left by the winter winds, every little weed, every green moss, are book and lesson and apparatus, to a mind healthy and properly instructed how to instruct. You will allow me to urge this point on your attention, gentlemen, for many of you are members of school committees I do not doubt. Would you wish to induce your sons to settle down near the old family hearth and pursue the noble labor of the farm, do all you can to make the farm the most attractive. See that the teachers you employ can teach something that is connected with the business you love and which you wish should be developed and elevated. It is a common law that every need has some supply near at hand; create that need, and the supply will follow. What money and pecuniary offers fail to effect, however liberal you may be in that direction, taste and conviction arising from education will do. Adorn your dwellings with flowers, and encourage your children to cultivate them. Many a useful natural bent in the young has been lost by injudicious and thoughtless levity. Believe that an hour is not lost which your wife, or your daughter, or your son spends in the garden, among the flowers which they have learned to love. Labor is relieved of half its toil when smiled upon by the elegances of life. I have been no heedless witness of these facts, and the most industrious hands and the most loving and motherly hearts have I found among those who cultivated the tulip bed or nourished the rose bush in some corner of the farm yard, amidst discouragements which would have appalled the sterner sex had they been suffered to exist where the corn and the potato patch stood. "The farmer's garden," says Elihu Burrit, "is the introduction to a large volume, of which every acre is a page, bearing the marks of his character. Viewed in this light, the gardens of New England are full of hopeful and instructive reading to those who consult their chronicles. They show that science, taste and successful industry have been brought to bear upon agriculture. They mark the degree of mental culture and refinement to which the farmers of the coun

try have attained." Let our common school teachers, I repeat. understand that they are expected to communicate such knowledge or go without employment, and my word for it, you will find them all apt and fit for the task. In this town, close by, stands a noble monument of gratitude to and love of the birthplace of one, who went from you a boy and returned to an ovation such as is seldom granted to what the world calls great men. Beneath its roof stand volumes of wisdom, science, art, freely offered to every citizen. Not far off is its duplicate library, in which are choice books, and which I have been generously invited to consult. Its lecture room affords easy facilities to any one to listen to the eloquence or to quaff from the fountains of knowledge, which the lyceum lecturer offers you. We admire such generosity, such thoughtful care for the rising generation. But is it too much to expect that what George Peabody has done for his native town, others may do in some other way for theirs, and that an enlightened agriculture may lay the foundation of a similar rural fortune to the village where it is pursued? If agriculture as a science is to become the great national enterprise of a free people, can we who encourage and foster it by agricultural fairs, exhibitions of stock and produce, by our libraries and premiums, do too much in our means of primary education to advance it? Set out well and carefully the young tree, and you need not fear that under ordinary circumstances, you will be disappointed in the fruits. Elevate your calling, gentlemen, and you open avenues of usefulness and wealth, surer and as honorable as commerce or mercantile pursuits. The science, which prompts your labors and which induces your children to love the old homestead so well that they will not leave it for the uncertain gain of other trades, will not necessarily involve you in expensive habits or ruinous enterprises. The reason why we see such, is not from the science, but from its want. In all pursuits there is necessarily much pretence, yet that does not prevent the pursuit of the real and substantial. True science is accurate, patient and rewarding; empiricism is pretentious and false. Every evil has its remedy, and if not in our generation yet in one to come, and for which we should labor in our day, will be enlisted in your noble calling the very highest and surest names in those departments

of knowledge and enquiry, which are connected with the cultivation of the earth.

I suggested, in the early part of my remarks, that the eye was through the hand, the great minister to the supply of useful knowledge and practical wisdom. Clearly then, it was intended in such beneficent a gift, that we were expected to observe. This duty of seeing, of observing, devolves upon the farmer in the most minute particulars of his calling. How quick your eye detects the symptoms of disease in your stock; and how much is done by practice. Deficiency of points in your horse you will notice, which might escape others. The same holds good in the minutiæ of your crops, and the most careful criticism is worthy your care. On such observation, constant, daily, perpetual, the most ordinary and the most extensive labors of science depend. Many entertain the idea that the study of the natural sciences ought to find the cure, remedy, preventive to every injury occurring from bird, insect, or vegetable depredator. What, it is asked, is the use of entomology, if you naturalists cannot tell us how to drive away the canker worm, striped bug, caterpillar? Such an objection is, however, not worthy a generous mind. The same would lie against all the learned professions, as they are called, if pressed to the ultimate limit. The difference between observation and patient enquiry on the part of the farmer and a refusal to see and observe, is that between ignorance and enquiry—darkness and illumination. Would he be considered wise who should refuse a lantern in a dark night, because it were not a lighted gas jet or the sun? A natural inclination or an early taste for such observation cannot be too much commended. The onion crop has severely suffered from an offensive larva, whose habits are worth noting from year to year. The remedy against it has not yet been discovered—perhaps it never will; it is better to know your foe and its capabilities to mischief than to persevere in the culture of that root crop against so many disadvantages. I should hardly hope to prophecy a future exemption from any application or from any new variety of the plant, after what has been tried by so many farmers. The habits of insects are mysterious as yet, and we can only hope to profit by eternal vigilance. It seems significant to me, however, that the fly belongs, appar-

ently, to the scatophagrus tribes, which nestle and deposit their eggs in particular kinds of manures especially. Total abandonment of this vegetable as a field crop for a series of years, may by depriving each generation of the proper nidus for its larva, cause its extermination; and though we may mourn when we think of the "leeks of Egypt," our children may enjoy by our abstinence greater advantages when the root can be cultivated again with success.

It is too common, in absence of other knowledge, to infer that what is known abroad of similar facts is identical with what we desire to know at home. But I think it may be concluded that every cultivated country has its own peculiar disorders, diseases and parasitical complaints. I would speak more particularly of plants, which are more familiar to me; and aver that many of the most insidious kinds of mildews, blights, brands and smuts, are structurally and typically our own. The naturalist who would investigate these may find them only analogous to foreign species, and from atmospherical conditions requiring different treatment. We need then an American system of science, based upon American facts in Nature.

Our culture too should be American, suited to our soils, climate, productions, to *our* fruits, grains, seeds, roots. I would by no means discourage experiments with approved foreign kinds, yet such experiments should be not hastily or widely adopted. Mr. David Landreth, an experienced seedsman, found among fifty-two specimens of turnips raised from seed imported by him, but *two* varieties worthy of perpetuation. In the subject of grass seeds, too, the knowledge of the actual species can only prevent disappointment in sections where they are unfitted to the soil or latitude. Mr. Ives has shown in your "Transactions" how coincident with the soils are the varieties of apples and pears; what English kinds succeed, to what extent American varieties can be distributed through these United States. The potato rot presents a similar aspect, and in vain were the journals of Europe searched for the cause. Even the fungi described by the mycologists abroad did not occur on our own, and this insidious destroyer has baffled the most careful experiments to detect the reason of its presence. Is it a

waste of time and study which has hitherto been expended to find the cause and remedy? Then equally wasteful the patient hours of the kind and generous physician, who has sought in vain for the reason and cure of pulmonary disease, or who has risked his own life to detect the seeds and germs of the cholera, which affrights and devastates nations. Equally so is the rot in the grape, which by the western vine-grower has been thought identical. But agriculture with its science must not borrow from abroad; it must build schools of American science, observation and research. Its soils are to be analyzed by its own chemists, its plants which grow upon them analyzed and specified by its own botanists, and the fields that are to be reaped should be sown with its own seeds. Is it too much to expect that from resources as great naturally as are to be found elsewhere, products as mighty and great can accrue?

I have addressed you, gentlemen, as members of a County Society, and that county the flower, perhaps, of Massachusetts. But I would not have you unmindful that agriculture is not sectional, and that its domains are as wide as the limits of a nation's rule. The establishment of similar societies throughout the width and length of the land, can best give us an idea of the vast resources of our agricultural capabilities. Embracing so vast an area of domain, every variety of soil is to be met with and studied. By beautiful adaptations, every section has its own proper and peculiar vegetation. The natural distribution of plants is coincident with the capabilities of the soil. This renders every state in the Union best adapted to its own agricultural products. But the time may come when exhaustive crops may render unproductive the soils which now produce them abundantly. The kind and nature of the labor, the natural causes which produce natural effects, the very strata of the mineral products, the geological formations, the permanence of rivers and streams, the atmospherical conditions depending on the industrial pursuits of men, are worthy the most serious considerations in scientific agriculture. Already the fearful droughts in sections of the west, point with the finger of admonitory wisdom to the pioneer into their broad and blooming prairies. The sweeping away of the forests without any care, may prove most disastrous to the settler ere many years have elapsed.

Deprive our New England of its green woods, and we should be similarly situated. Millions of acres are there in the Eastern states fit for nothing else than forests and the resorts of wild beasts. Thanks to the rocks, the boulders, the ridges paved as with art, which embosom in their rifts the stately trees, and help to secure from devastation the trunks of centuries growth. The shore towns of Massachusetts Bay are thus beautifully environed; and as you gaze from one of the hill-tops of this very village, you can see farms and fields like some smiling picture set in a frame of sempervirent emerald. Thanks to the sterility of such a soil, which bears on its bosom a vegetation as stern and noble as the sons and daughters which it likewise feeds. It is otherwise in sections easier of wider cultivation. The scanty forests of the far west are limited to the banks of streams and the islets or openings in the rolling, sea-like prairie lands. The black fertile virgin soil of other western states nearer our own, teems with deciduous forest trees of mighty proportions and exceeding beauty. The land is more precious than the forests, and beneath the earth lie beds of combustible coal. There seems no immediate need of so useless an incumbrance on the surface and the belted river side, the wide unbroken forest soon yield up their leafy honors. The lofty and shady tops no longer retain the rising evaporation or check the passing clouds, grateful for their moisture and shower. The soil yields up, too, its *humus*, the slow accretion of ages; and has no return from foliage and dropping leaves in sufficiency to supply the demand. The water courses must fail or seek some subterranean channel in the caverns of the lime-stone strata. Sterility must be anticipated, or at best uncertain and fitful returns. It becomes then a question whether the West, from natural causes, is to be the great agricultural granary of the nation, or whether an enlightened or scientific agriculture will not provide adequate preventions in time? When the Isle of France was first discovered, about a century ago, the soil was exuberant and fertile, and frequent showers were the rule; the destruction of the forests has produced the reverse.

I have thus sketched to you a possibility only, perhaps, but as illustrative of the magnitude and nobleness of the pursuit you have chosen for the labors of your hands, for the exercise of

your observation, for the success and reward of your industrial toil. I could speak to you on other topics, on many subjects of interest to you and to me. I could speak of the curious experiments in fruit and vegetable culture, the hybridization of grapes, the results which have rewarded those who have instituted them; of the value of vegetables originating among us, and which Essex county claims, such as the Marrow squash and the Hubbard squash or pumpkin. But other and more practical heads and hands can treat these subjects more effectually. I could recommend search for new or unknown varieties of the apple, new and unknown at least to your society, because not seen beyond the farm where they originated. I could dilate on the cultivation of fruits on the farm; try to induce you to encourage your children to raise the raspberry along the stone walls where weeds may be suffered to grow, and to make the strawberry more common, and the cranberry cheaper, by its increased crops. I could speak of the interest to be had in raising new varieties of the smaller fruits from seed, such as the currant and the plum, and in endeavoring to procure varieties free from the wart. These and a thousand subjects press on my mind, but I forbear, thanking you for your patience in listening, and wishing you all manner of success in your occupation, which you can make the most ennobling and national.

It was told of one of the Henrys, that he hoped that every peasant in his kingdom would be able to have a fowl in his dinner pot on Sundays; it can be said of us that we will make fruit of all sorts to grow in every poor man's yard or garden, or about his premises. We should hear less then about the injury done to fruit crops by birds; for there would be enough for birds and men, and pilfering by mischievous boys would cease.

Strive to accomplish this in every way in your power and at your command, and let the Essex Agricultural Society hold a prominent rank among the philanthropic and benevolent institutions of the land, helping to "make the wilderness and solitary places glad," and inviting the stranger from far and near to come and learn of you.

REPORTS, &c.

FLOWERS.

Your Committee proceeded to their work with a somewhat enlarged impression of its magnitude, derived principally from the fact that some fifty-three entries appeared in their department. But we are compelled to say that, taken as a whole, the quality of the exhibition was not in keeping with this large numerical character. There were very many entries of single articles; one pot-plant, one bouquet, one dish of cut flowers—and each helping to swell the list, but sad to say, not always to enhance the floral dignity of the occasion.

We did, however, find good flowers in the exhibition, and here and there specimens of fine taste and skill in their arrangement and preparation. On a limited number of such cases we divided the small amount placed at our disposal, with the exercise of our best discretion. It would have pleased us to have more to distribute; but such as receive nothing must excuse us partly on the ground that their relative grade was such that the funds fell short before reaching them, and partly on the ground that their absolute merit was hardly such as to give them a much better chance in any competition.

Your Committee beg leave to say, that to us the practice of exhibitors, of dividing a lot of flowers into many parcels and entering them in as many different names as possible, seems a

very poor one. It may obtain free tickets for a greater number of individuals, but it greatly lessens their chances of receiving any gratuity, embarasses the judgment of the committee, and tends to depress the character of the exhibition. In several cases we found lots, evidently one and the same, entered in three or four distinct names; had only one name appeared, something might have been given, but by dividing the fraction fell below the minimum amount and nothing could be done.

We do not incline to make this matter one of sentiment entirely. There is a practical side to floriculture as well as to everything else. We de not like to see, and we cannot advise the Society to encourage, shows of poor or even ordinary flowers. We do not now speak of those for decorative purposes; a ragged dahlia or an illy marked phlox may do as well in a festoon, or to trim a chandelier or statue with, as a better one, but when we come to flowers shown for prizes, or as evidences of skill, the case stands far otherwise. Massachusetts is old enough, and Essex county is skillful enough and near enough to the metropolis, to raise and exhibit flowers that are really good and fine; and there is no need of bestowing the funds of the Society on such as are swept up, hap-hazard, from the common garden on the day, or night even, before the exhibition.

The arts of the gardener and the bouquet-maker are pretty equally concerned in a show of flowers. Either is acceptable; both together are better; but where no evidence of either appears, there can be little to merit praise. Indifferent flowers, well and carefully arranged, and displayed according to the canons of good taste, cannot certainly fail to please. So, also, will well formed flowers, with clear colors and even markings, elicit commendation, though they have a poor position and no arrangement at all. But what satisfaction can be felt by a person of cultivated taste in a display of dahlias, flat and dull-tinted, with centers green and hollow and petals irregular and projecting, and here and there one in which the pollen-bearing anther peeps out mischievously, to hint at a retrograding to the old unsightly single form? There is as little pleasure in the view of pot plants that emulate the palm tree in their lack of all foliage except at the very top; and few care to look long at a plant that has neither variety nor peculiarly fine growth to

recommend it. Again, it might be a pertinent question, what encouragement do we give to art by rewarding the production of bouquets that are crooked,or one-sided, or that have no shape that a painter could imitate? Or such as have the large flowers where the small should be, or the colors in unsightly patches instead of agreeably distributed, or those where the flowers are packed close with no introduction of foliage, as if there were just so many and all must go in?

Now it may be that some will think this very little better than nonsense; and insist that none but the fastidious would try to have flowers grow by rule, or consider them better in proportion as they did so. But if this were the proper way of judging, misshapen and half-developed forms, or muddy and blotchy colors were just as good as any others, which nobody admits. Why then, if symmetry in a flower be at all desirable, should it not be carried as near perfection as may be? If one good color is preferable to twenty poor ones, why should not one that is decidedly superior be prized above twenty that are simply good? Why should not the highest degree and quality be made the object, as well as to rest with a half-way completeness?

This is not the place to argue this question. We prefer to assume the principle, on the credit of the best cultivators and writers, who have agreed, time out of mind, that the chief merit in the raising of flowers, lies not in the quantity of the crop, but in the quality and character of the results, to be studied in some instances, even in one single individual blossom.

While we are anticipating objections to the judging of flowers thus nicely, we may refer to one or two others. It may be urged that such as come up to the standard are never seen, and the standards themselves are wholly imaginary and useless. But to say this is to betray shortness of sight. Glenny, who wrote on this subject some years since, elaborated a statement of perfect properties of the various florist's flowers. While many regarded them as too exacting—calling for higher excellence than had ever been attained, the author seized this very ground for his best defence. It were better, he argued, that the standard should be imaginary and beyond reach; for then we may make it absolutely perfect, and every step toward the

attainment of it will be in the right direction, though the full arrival at it be impossible. Thus, to declare that the pansy, to be perfect, must have the petals all entirely flat and in the same plane, and all five, at their edges, forming an exact circle without indentations,—is to declare every pansy imperfect that ever was seen, and therefore, every one capable of some improvement, while the model itself could not, probably, be bettered. But if we were to take some fine flower that had been shown, as a model, we should be contenting the art with some degree of absolute imperfection and at the same time depriving the grower of the flower of some share of incentive to his further exertions. And accordingly, to assume that the pansy ought to be a circle, and the tulip a true hemispherical cup, is to give cultivators a lesson in the production of the most perfect flowers, and at the same time with no fear that they can ever reach the standard and be able to throw it aside.

There is another objection, entitled to much greater attention. It may be said that by setting up a high standard, we tend to give the advantage to the opulent cultivator, who with plentiful means, has full chance for the improvement of his flowers. Nothing of the kind is true. We suppose it may be the case at the present time, that with us, more good flowers—better single specimens—do generally come from well appointed gardens. But it need not be so. It is not so elsewhere. We learn that, at the English shows, the prizes are far more frequently carried off by mechanics and laborers than by practicing gardeners, and the highest perfection in quality is very often attained by some poor individual whose means will only provide a single hill of annuals, or a single pair of potted primroses.

This is much as we might expect. The nurseryman of large business has, in the general way, too much on his hands to give to single plants that degree of care and attention which is indispensable to this kind of success. He must raise his plants by the dozen or hundred, he must have them ready for the sales of a particular season. He must have regard to the attainment of the qualities which give good effect to the whole plant, and not confine himself to the production of fine and perfect flowers. He must, in a degree, forget to love and "set by" his

plants and bring himself to make merchandise of them, with no special regrets when this or that is carried off by a customer. In fine, he must raise plants for the market and not for his own heart or the eyes of judges. So, too, the gardener who has the responsible charge of extensive grounds and gardens will, we think, rarely have the leisure to attend to the special culture of any chosen flower. The appearance of his walks and green-houses, his fruit trees, vines, and shrubberies, are paramount in their claims, and it will hardly do for him to be meddling with prize pansies, or spending his time over the form and tint of a pet chrysanthemum. He has to be bringing forward his succession-plants for winter flowering, and his bedding-plants for the borders in spring; for he has a reputation to keep up, and he will not do it by gaining half the premiums at the exhibitions, and letting his beds get meagre and weedy, and his unthinned grapes prove his carelessness at home.

But the position of those not professionally connected with flower-culture is far different in these respects, and affords far greater advantages for the purpose we are considering. There are very few people in mercantile or professional life—nay, there are few mechanics or laborers even, who have not *some* amount of leisure. It is spent as each happens to fancy: but in all these classes there are many who naturally love flowers, and look upon them with much of good taste and judgment, and how many such there are who forget that they, of all men, are the very ones to carry the art of floriculture to its perfection. Look a moment at the case in detail. Except in the most compact parts of our cities, there are few tenements to which there are no small patches of land belonging. The humblest laborer has, generally speaking, a square rod, more or less, of soil that he can occupy for his own uses. Suppose it is a square rod,—that is enough. It will give him a four foot hot-bed, in which he can start his seedlings so as to take advantage of the earliest spring. It will give him room for one or two cold-frames besides, if he likes, for the protection of his later plants with tender buds. Then he will have some ten feet by fifteen remaining, or a hundred and fifty square feet, and three-fourths of this will be perfectly available for cultivation. He needs no walks; he must go between his plants, and close to them; he will want

to sit down by them and examine them carefully and often, and they will grow no worse if he does tread the ground a little about them. Let him not say that here are accommodations for very few kinds; he can have enough, two are better than twenty, and one alone will pay better than either. There are not many species of plants requiring precisely the same soil and treatment, and his mind will be freer, his task simpler, and his success more certain, in proportion to the fewness of the subjects he undertakes upon. The individual who gives his spare time to the raising of seedling verbenas alone, *with the express view of producing the best and most perfect results*, will bring out things that will surprise him with their beauty, as well as repay him for their cost. So of pansies. So of chrysanthemums, tulips, carnations, phloxes, dahlias, and a score of things beside. Neither should the poor man, in such a work as this, be left to think that he must incur large expense to thus gratify his taste and prove his skill. For half what a moderate smoker spends in a year for cigars, he can provide half a dozen good second-hand sashes, and for the other half he can obtain all the manure he needs for his hot-bed. After it has been used there once it is in a far better state for the rest of his ground than the same amount of new, and there is a plenty for the whole. Nine-pence worth of nails, and a few second-hand boards, such as a carpenter had rather give away than use, complete the outfit, and he can make his frames in a single winter's evening, if he has any ingenuity.

He may do with even less expense than this. Suppose he is a carpenter: he can make his sashes cheaper than he can get good ones, even at second-hand. He can collect leaves in the forest in the autumn, and bring home enough in half a day to make his hot-bed, and many consider them a material far preferable to any manure. When they are worn out in the hot-bed, let him throw them in some waste place, and compost them with the refuse matters from his house, and he wants no better or more plentiful manure for his little garden. For the rest, patience, a firm hand and a clear head are amply sufficient; the change of the seasons, the warming sun and the moistening rain as freely come to him as to his more opulent neighbor.

It is very true that this plan will hardly put the mechanic or

laboring man in the way of having the tenderer plants of the greenhouse and conservatory. He cannot in this way cultivate Geraniums, Pelargoniums, or the tender Roses. But there are plenty of others, as already hinted. Or, if his taste still prefers such kinds as will not winter in his frames, he may still go on raising them, and dispose of his products to advantage before frost sets in, provided he selects such as can afterward be propagated by cuttings. Thus he may realize a double profit, by the exhibition of his flowers to create his reputation and the the sale of his plants afterward.

It is not intended, of course, in a report like the present, to offer an elaborate essay on the culture of flowers, or indulge in any flattery of the laboring classes. We merely wish to show that if flowers are to be exhibited for prizes, there should be some definite effort toward improvement and further that all may share in such an effort, from the man that can keep up his hundred running feet of glass, to the one that looks over the fence and envies him, but alas, has hard work to earn three hundred dollars a year. We desire to encourage such—to tell them that they can not only raise good flowers, but the chances are better than the wealthy, and even make the thing produce some little income. A poor man digs his little patch of ground, and raises a few bushels of potatoes, or a few dozen of cabbages, and thinks he has done well. So he has, perhaps; he may have been industrious and wasted nothing, but he might have done better. He might have brought out a new Fuchsia, perhaps, or a choice Lantana, or originated some fine Gladioluses, for which a nurseryman would be glad to pay more than ten times the worth of all his vegetables. This is not mere theory. We have all been advertised that a splendid new Geranium, raised by Prof. Page of Washington, has been bought up by a Boston house for cultivation and sale. But Prof. Page is not "in the business;" but simply an amateur, and Jacob Jones or Teddy McGee has just as much right to be, and for aught that appears may be far better qualified to succeed in it.

We see only one practical obstacle. Our people like to do a good deal. If there is room about the house for a flower bed, it must be filled up, or it amounts to nothing. They must put Sweet Williams and Astors, Dahlias, Verbenas and Phloxes,

and then stuffed between with Candy Tuft and Coreopsis, Marigolds, Lupins, Mignonette, Sweet Alyssum, Portulacas, and forty others, in fine, all that the soil will hold. Then they must grow, and lop over, and draw up, crowded together as if to represent a miniature of the thickets on the Amazon; and from such collections are too often selected the flowers for an exhibition bouquet. Now, how much better to give one's leisure to the systematic culture of a hundred fine Tulips, or fifty, nay five, every one of which shall prove that the cultivator has studied his flower, that he has learned the management of its color, the secret of its form, and the requirements of its appetite and growth. In this we should have both floral beauty and improvement, and mental discipline and development; by the common mode of raising flowers we have very little of either. Still we beg not to be understood to say that even this should be abandoned, for it is better to grow flowers poorly than not at all. He who despises flowers is clearly wrong; no sound argument can be brought against the love of that part of creation from which the learned and the good in all time have drawn deep lessons of wisdom — from which the Savior himself extracted incentives to a trustful and quiet spirit. If we choose to say that some spend money and time upon flowers, that should go for other uses, we may do so; but we cannot say that the object of such prodigality works any harm to the seeker. The lover of flowers is sometimes too enthusiastic, perhaps, but they never sap his strength like the cups of the inebriate, they never drive him desperate like the gamester's dice, they never bedull his ears to the cry of the affections, like the sordid man's gold. One has said, that when music fills the mind no evil thought can enter; but we claim with equal truth that when the love of flowers possesses the heart it is not only emptied of evil, but made the home of a positive good.

Let flowers be raised, then, a thousand in future where there is one to-day. Let the rich citizen lay out his garden liberally and enrich his grounds with hot house and conservatory. Let the man of lesser means put up his cheaper greenhouse, and preserve through the winter a stock of those tender beauties that shall gladden the early spring as well as the heart and home of their possessor. Or, if this is too much, let him

provide a still less costly "pit," where with some inexpensive heat he may exclude the frost and give his tender Roses and delicate Geraniums a safe retreat. If he cannot do this, let him make a bay-window toward the southern sun, and take care of his dependents there. It will cost more trouble, but he will learn something, and he can do very well.

But above all, let not the poor man who loves and appreciates flowers, and feels in his heart that he knows how to cultivate them, hesitate one moment about undertaking it. Let him choose the one plant of his preference, and leave the rest to others. Let him stock his little bed with the best he can get, and then by manuring, hybridizing, and selecting the best seedlings, work steadily on toward the most perfect flower he can conceive of. He must not tolerate a poor flower — he cannot afford to. If his Verbenas come with small flowers, or loose, meagre trusses, and poor and dirty tints, they are nothing worth, throw them away! If his Chrysanthemums are ill-shaped and ragged, or open in the center, or poor colored — there are enough such, he should let them go at once. If he cannot make his Dahlias come up well in the middle, with no show of green or of yellow stamens — he has failed — he should try again or cultivate something else. Depend on it, he can succeed with something, and by all means let him find out what and do it.

Had we such a disposition thoroughly aroused in our community, we might soon return some of the favors of our transatlantic brethren, shown us in the shape of imported flowers. Think of the dozens of fine varieties of French Phloxes sent here annually, the originals of which all went from this continent in the first place. Why must we send our flowers to France to be manufactured? Because the gardeners there better understand the cultivation of them? The more shame for us; we ought by this time to know how as well as they. Nor is there any better reason for the yearly influx of Bulbs from Holland and Asters from Germany. We barter away our independence in these things for very small advantages, after all. It may be questioned if any New England gardener has raised those great glorious Asters from seed of the second year, that is, from any but that which was imported. "It runs out," we are told. Why, then, are we not wise enough to make it "run

in again?" There is something to be learned, even here, and the sooner we are about it the better.

Again, who among us makes a study of the Sweet William? Who cultivates it specially? The English do, and successfully; and no one, we think, after careful observation of the plant, can dispute its claims to the attention of the true florist. It should, we believe, have more care than it has of late, and it is eminently a plant for the poor man's garden. It is hardy with no protection, and perfectly secure with a little. No plant sports more, or gives greater scope of tints and markings; none is better displayed or lasts more freshly after cutting. It needs only to add, that there are not twenty plants in common culture capable of such uniform good effect, both in large masses and single stools.

To close this part of our report, we desire to suggest to the Society the great propriety of so shaping their action, as to help secure the results we have advocated. The proper encouragement can never be given to floriculture in a community by rewarding only those whose multiplied treasures can fill a whole table, or engross half the side of the exhibition hall. This sort of *quantitative* skill should have its reward; but it will never give the spur to cultivation like a demand for the best dozen flowers of any specified kind. If we are right in our belief that in most of what are known as "florists' flowers," the poor man *can* succeed as well and perhaps better than another, then he should have all opportunity to compete, for the best flowers there are, are none too good for these exhibitions. Again, it strikes us that the system of gratuities might be well replaced by that of definite prizes. There is not sufficient distinctness now in the object presented to the competitor; he is merely to put in *something*, and take his chance of a gratuity. He hopes for a reward, but has no idea how much it will be. But let the Society offer distinct premiums; for instance, for the best pair of parlor bouquets,—for the best pair of hand boquets—for the best floral design—for the best dish of cut flowers—for the best dozen of dahlias—for the best dozen of late phloxes—for the best dozen of verbenas—the largest and best display from one individual, and so on, and we really think the effect would be far more satisfactory to all parties.

It only is left to instance the entries on the present occasion which we have deemed worthy of reward, and the amount given to each, as follows :

No. 1. *Sea Flowers.* T. S. Greenwood, Ipswich.

A superior suite of marine Algae, pressed and framed. The management of the fine traceries of these was very good, and the taste and skill shown in the connection and grouping of different forms and colors, was certainly worth of much praise. $3 00

No. 7. *Two Bouquets.* Mary S. Moore, South Danvers.

Better than the average, though not striking, 50

No. 10. *Two Plants.* M. N. Stark, So. Danvers.

A Begonia and a Sedum. Not rare or hard to cultivate, but finely grown and of considerable merit, 1 00

No. 13. *Dish of Cut Flowers.* J. L. Stevens, So. Danvers.

Very good. Not many better flowers in the exhibition, or better arranged. 75

No. 14. *One Pot Plant and Cut Flowers.* M. J. Buxton, So. Danvers.

A variety of matters, all having some merit. 75

No. 15. *Cut Flowers.* Fred'k Lamson, Salem.

A fine display, particularly worthy of encouragement for the taste shown in the arrangement. There were as good flowers shown by others, but none where more skill appeared in the grouping and disposition of colors and forms. 3 00

No. 16. *Native Flowers.* L. Stiles, So. Danvers.

This vase was well filled, and we were glad to see this department of Flora's realm so well remembered. With the large variety shown, the arrangement might have been a great deal better, and the piece we thought showed the effect of haste, yet it was very good. 50

No. 17. *Pot Plant.* M. A. Barrett, So. Danvers.

A magnificent Salvia splendens, the special object of general remark. It was altogether the best pot plant shown, and though salvias are easily raised, yet this had evidently had care, and was very fine indeed. 1 00

No. 18. *Stand of 276 Cut Dahlias.* Bosson & Glover, Salem.

Very worthy flowers and a fine display. The position selected for them was poor, and we doubt if visitors could properly see their excellence. The prominent fault was the small variety of colors; the whole stand had a dark look, from the too great lack of the paler tints. Some of them, too, had forms too poor for exhibition. Yet the whole had much merit. 3 00

No. 19. *One Pair Parlor Bouquets.* M. A Glover, Salem.

The best boquets exhibited. No one, we think, disputed it. They deserved more than we had to bestow on them. We think, however, that strictly good taste would demand more of green foliage intermixed, for there was a slight look of bareness and stiffness about them which this would have relieved. 1 00

No. 20. *Cut Flowers.* B. D. Hill, Jr., So. Danvers.

A large variety, and most of them very fair. The principal feature here was a stand of the new Lilliputian Dahlias, which certainly had much merit. They were very well selected as to color, and judiciously arranged. The great trouble here, as everywhere with dahlias, was imperfection of form. There was nothing glaring, however; and these were the best of their kind that we saw. 1 50

No. 21. *Cut Verbenas.* M. A. Hill, So. Danvers.

Rather, perhaps, a floral design, being a close pyramid of many dozen trusses. An arrangement less crowded, and the introduction of more light colors and a little green, would have enhanced the effect. The piece, however, showed care and effort, and was worth more than we could give it. 50

No. 22. *Cut Flowers.* Lydia Osborn, So. Danvers.

Good, but not striking. 50

No. 23. *Bouquets and Cut Flowers.* Sam'l Driver, Danvers.

A very good display and rather a large one. We noticed more than average taste in the arrangements, and wish all the show had been as good. 1 00

No. 26. *Bouquet.* Hannah Johnson, So. Danvers. 50
No. 27. " L. H. Buxton, " 50
No. 28. " H. W. Buxton, " 50
No. 29. " S. W. Bodge, " 50

Very fair, but ought to have been a great deal better. Still there were many much worse.

No. 30. *Basket Cut Flowers.* Mrs. J. Perry, Danvers.

Had all been as good as this, the show would have been much better than it was. 50

No. 31. *Cut Dahlias and other Flowers..* C. S. Storrow, Lawrence. (By Edward Flynn.)

The Dahlias from this garden have come to be a standing feature in the exhibitions of the Society, having carried off the first prizes for several years. On this occasion they were certainly very fine and being displayed in the very best part of the room had every advantage for a just judgment. The variety of colors was large and pleasing and the disposition evidently skilful. We found the most perfect forms in this collection, and consider it the best of all, both for extent and quality. But if the Committee had made the examination in the forenoon, as the programme of arrangements required, the exhibitor would have lost his opportunity entirely, as his flowers were barely ready at 2 P. M. when they begun their duties. 4 00

No 32. *Three Vases of Native Grasses*, M. Brookhouse Danvers.

We are glad this kind of floral display, so popnlar once, has not yet wholly retreated before the change of "fashion." These were skilfully arranged, and made a very good appearance. When we reflect on the labor this kind of work requires, before the final arrangement can be began, the real merit of the result is somewhat more evident. We thought all three of these pieces decidedly praiseworthy. 3 00

No. 35. *Bouquet*, S. P. Buxton, S. Danvers.

Sufficiently before others to deserve notice. 50

No. 44. *Native Flowers*, Dr. Geo. Osgood, Danvers.

Very good, and creditable to this veteran botanist. 50

No. 45. *Cut Dahlias.* Capt. R. Bayley, Newburyport.

The Committee were informed after the awards had all been ended, that this collection had not been properly shown, and the best flowers in it had been scattered and lost sight of. For the exhibitor's sake we regret this greatly, but we could only pass upon such as were properly set forth and ticketed. These were of the Lilliputian class, and very good, well deserving encour-

agement, but in point of form and variety of colors they fell somewhat behind others in the exhibition. How many better ones there were in the room that should have been with them, we have no means of knowing. 1 00

No. 46. *Bouquet*, S. A. Messer, South Danvers. 50

No. 48. " Will Weeks, Salem. 50

No. 53, " F. J. Nichols, Danvers. 50

Very good, but scarcely remarkable.

No. 49. *Pressed Flowers*. Mrs. H. Cummings, Glouc'st'r. 3 00

No. 50. " " C. J. Winchester, " 1 00

These beautiful things ought to have had a better position. Being composed entirely of dried petals, arranged with great care and taste, pressed flat on paper, and framed with glass, they were perhaps taken for paintings by many who could not get near enough for a close examination. They possessed great merit, and were the admiration of the Committee. Three frames were under No. 49, and one under No. 50.

We have thus completed the work assigned us, as our best abilities enabled us to do. As intimated at the outset, we both regret the ordinary nature of many of the flowers exhibited, and also the meagerness of the funds placed at our disposal. Without further remark, save an expression of hope that the ideas advanced may not be taken as an offensive criticism by any one, that the society may be induced in future to afford greater encouragement to this branch of industry, and to introduce such a system of exhibition as shall tend to elevate the standard of popular taste, and finally, that many, now restrained from entering into a wholesome competiton by their narrow means, may come to see a way equally open to honor and profit for them as for others, this Report is

Respectfully submitted,

For the Committee,

C. M. TRACY, CHAIRMAN.

FRUIT.

The show of fruits at South Danvers exceeded any previous exhibition of the Society, in the number of dishes as well as in the entries; there were eleven hundred plates and baskets from two hundred and six contributors. The past season has been emphatically a fruitful one: fruit trees have been very luxuriant in their growth, and the fruit has been larger than usual. The Belle Lucrative, Beurre d'Anjou, Sheldon and Beurre Bosc Pears were larger than we have heretofore seen; the Tongres, a large and superior fruit from Mr. Porter of South Danvers, as also the Sheldon, from Mr. Goldthwaite of Salem, a native fruit resembling in the texture of its skin and flavor the Seckel, and being much larger, will undoubtedly be one of our best American seedlings, were also prominent. We have had a season resembling an English summer; pears in England are said to be generally smoother, or fairer than with us, but with less of that aroma or rich flavor which in a warm season characterizes ours. Our pears the past season have been freer from blight or spotting, but with less flavor; the English gooseberries which almost invariably mildew with us, have been the past season entirely free from it. The show of apples was more extensive than at any previous exhibition, and from the requirement of your committee that at least twelve specimens of each variety for which premiums were offered, and also that no contributor should place upon the table more than one plate or basket of one kind, we were able to present as fine an assortment of reliable varieties as were ever offered in the county, if not in the state. From the method adopted some years since in giving premiums for certain varieties, the result has been that scarcely any of the indifferent sorts were presented. This plan of giving premiums for those apples and pears which are upon the whole most remunerative, has induced many of our cultivators to alter or re-graft such trees as the York Russet, Blue Pearmaine, Kilham Hill and others, with better and more marketable fruits.

Apples were upon the whole the most striking feature of the exhibition; two of the most prominent were the Gravenstein, first introduced from Copenhagen into New England in 1835,

by Capt. DeWolfe, of Dorchester, Mass.; and the Cayuga Red-Streak of Western New York. This last measured 14 inches in circumference, and is a fine winter variety, keeping into January. More attention has of late years been given to the cultivation of the pear than of the apple, the latter of which is altogether the most profitable, hence we commend to the society, that more attention should be given to its cultivation as well as to the nomenclature or correct names of the different varieties that are brought to our annual show; great confusion exists in the names of many sorts, particularly the large varieties, such as Cayuga Red-Steak, Holland Pippin, Beauty of Kent, Monstrous Pippin, Beauty of the West, Yellow Bellflower, Fall Pippin, and Drap d'Or.

As regards the pear or apple for culture upon the farm, we believe that the latter is the most desirable fruit for open culture, while the pear is best grown in the sheltered gardens of our cities and towns. The winter varieties, such as Uvedale's St. Germaine, Black Pear of Worcester, Catillac and Vicar of Winkfield, as well as a few of the fall varieties, such as Rushmore's Bon Chretian, and Chelmsford may be exceptions, as they flourish well in the open field; hence an Agricultural Socity should necessarily differ in its premium list from a purely Horticultural one.

Seedling pears of five varieties were presented by James Gregory of Marblehead; they were not at the time in eating order, but they have ripened up since the exhibition. One of these said to be a seedling of the Beurre Bosc, was found to be a fine fruit nearly equal in quality to its parent, the size large medium, the flesh not so white as the Bosc, but a pear quite equal to many of our fine varieties.

The past summer has been too cool for maturing this fruit, and although we had quite a number of native sorts, we were disappointed in not finding the "August Pioneer," a seedling of the Rev. Mr. Merrill of Lynn. Six varieties of Rodger's Hybrid Grapes were presented, and were examined by the committee in connection with two gentlemen of the State Board of Agriculture. Nos. 15 and 22 were found to be the two finest; these were of an amber color; No. 15 was more vinous in flavor than the old Catawba; No. 22 resembled that sort when well

ripened. If these should continue to be hardy varieties they will be an acquisition to our county. The Hartford Prolific, Diana, Concord and Isabella were presented; the first we found to be the earliest, being riper than either of the others.

Many of the pears shown were grown upon the quince stock. That this fruit can be made profitable for market culture upon the dwarf, which has been repeatedly asserted by fruit conventions throughout the country, we cannot admit, but should only recommend the dwarf in garden culture for family use *wherever it will succeed.*

It was gratifying to your committee to witness the constant and rapidly increasing collection of valuable fruits in our county; every variety, without an exception, was grown here, and notwithstanding the hall was crowded with visitors on the second evening, no instance of pilfering and but little unnecessary handling the fruit was known to occur.

The comparatively short time your committee had for the examination precluded them from giving that care necessary to a thorough examination, and if they overlooked any, this must be their apology; hence they would earnestly recommend that hereafter contributors should endeavor to send in their contributions on the day previous to the show, in order that the committee may go through their examination more carefully, and also that the doors of the hall can be opened for visitors earlier than heretofore in the afternoon of the first day of the show.

APPLES.

For the following sorts, of twelve specimens each, they award a premium of $1.00 each :—

Porter, E. Brown, Lynn.
Pickman Pippin, W. C. Barton, Salem.
Ribston Pippin, Amos Brown, Danvers,
Hubbardston Nonsuch, J. K. Leach, Topsfield.
Hunt's Russet, Henry Brown, Salem.
Baldwin, Ira Foster, South Danvers.
Danvers Winter Sweet, Daniel Richards, Danvers.
Seaver's Sweet, Frederick Howe, Danvers.
Haskell Sweet, Aaron Low, Essex.
Gravenstein, Daniel Richards, Danvers.
Minister, W. Sheldon, Danvers.

Sweet Baldwin, A. J. Spalding, Danvers.
Ramsdell's Red Sweet, Peter Wait, Danvers.
Ladies' Sweeting, Wm. L. Weston, Danvers.
Fameuse, Nathan Bushby, South Danvers.
Jonathan, S. P. Fowler, Danvers.
Red Russet of New Hampshire, Lewis Allen, So. Danvers
Roxbury Russet, Aaron Low, Essex.
Rhode Island Greening, J. S. Leavitt, Salem.
Fall Harvey, Sam'l D. Pindar, So. Danvers.
Drap d'Or, H. A. King, So. Danvers.
Lyscom, J. Fellows, Danvers.
Green Sweet, Josiah Newhall, Lynnfield.
Fall Pippen, Warren Sheldon, Danvers.
Moody, George Proctor, Rowley.
Ben, or Eustis, Lewis Allen, So. Danvers.
Largest No. above varieties, Josiah Newhall, Lynnfield, copy of Harris' Illustrated work on Insects.
Second largest No. above varieties, E. Lake, Topsfield, $2 00
Third " " " Benj, P. Ware, Marblehead, 1 00

APPLES.

For the best twelve specimens of the following, $1.00 each:—

Bartlett, Henry Brown, Salem.
Belle Lucrative, Charles F. Ives, Salem,
Flemish Beauty, Amos Osborn, South Danvers.
Easter Beurre, John D. Stevens, South Danvers.
Beurre Bosc, N. B. Perkins, Salem.
Seckel, James Perkins, South Danvers.
Buffum, Peter Wait, South Danvers.
Black Pear of Worcester, Wm. D. Northend, Salem.
Vicar of Winkfield, Benjamin Goodrich, South Danvers.
Winter Nellis, " " "
Pound, or Uvedale's St. Germaine, A Nesmith, Danvers.
Lawrence, Wm. D. Northend, Salem.
Glout Morceau, L. Merrill, Salem.
Lewis, Jona. Shillaber, South Danvers.
Louis Bon d'Jersey, Hiram Plumer, South Danvers.
Beurre Clairgeau, Isaac Hardy, South Danvers.
Andrews, Andrew Lackey, Marblehead.
Golden Beurre, Stephen Thayer, Salem.

Howell, M. O. Stanley, South Danvers.
Gansell's Bergamotte, E. S. Johnson, Salem.
Thompson, A. D. Rodgers, Salem.
Duchesse d'Angouleme, M. A. Thurlow. Newburyport.
Catillac, Isaac Hardy, South Danvers.
Urbaniste, M. O. Stanley, "
Bezi de la Motte, G. L. Hodgkins, Salem.
Fulton, Andrew F. Porter, South Danvers.
Wilkinson, C. F. Ives, Salem.
St. Ghislaine, Amos Brown, Danvers.
Beurre Diel, John V. Stevens, South Danvers.
Sheldon, J. A. Goldthwaite, Salem.
Doyenne Boussock, Francis Baker, South Danvers.
Beurre d'Anjou, Thomas Stimpson, "

For the largest number of the above varieties :—

To Stephen Blaney, South Danvers, copy of Harris' Illustrated work on Insects.

To John B. Stevens, So. Danvers, 2d largest,	$2 00
To Isaac Hardy, " 3d "	1 00

PEACHES.

Best Freestone white flesh peach, to C. F. Ives, Salem,	$1 00
" " yellow " Jos. Moore, S. Danvers,	1 00
" Clingstone peach, Alfred Ordway, Bradford,	1 00
" Essex Co. Seedling Rareripe, to C. F. Ives, Salem,	1 00
" Blood peach for preserving, " "	1 00

GRAPES.

Concord, Hiram Plummer, So. Danvers,	$2 00
Hartford Prolific, Aaron Low, Essex,	2 00
Native County Grape, S. C. Thurlow, West Newbury,	2 00
Rodger's Hybrid Hardy Grape, No. 15, E. S. Rodgers, Salem,	2 00
Diana, W. C. Barton, Salem, gratuity,	1 00
Isabella, C. F. Ives, Salem, gratuity,	1 00
Isabella, A. F. Bosson, Salem, gratuity,	1 00
Black Hamburg, Cold House, C. F. Ives,	1 00
Native Seedling, H. H. Campbell, Lynnfield,	1 00
Best basket Assorted Fruits, J. V. Stevens, S. Danvers,	$4 00

2d best basket Assorted Fruit, Nelson Bodwell, Boxford,	3	00
3d " " " L. M. Ives, Salem,	2	00

Gratuities for collections of Fruit :—

Joseph Moore, Stephen Blaney, Lewis Allen, Sam'l Newman, Andrew S. Porter, Hiram Plumer, Joseph Bushby, A. P. Phillips, John B. Clement, S. Osborne, Stephen Fernald, Thomas E. Proctor, Sam'l Blake, So. Danvers, Josiah Gray, Albert G. Spalding of Danvers, Alfred Horton of Newburyport, and S. Adams of Topsfield; Mrs. James Beaver of Salem, $1.00 each.

Adams Nesmith. H. & J. M. Perry, Wm. R. Putnam, Warren Sheldon of Danvers, and M. A. Thurlow of Newburyport, $1.50 each.

F. S. Lovett of Beverly, Wm. Weeks of Salem, E. Brown of Lynn, Dennison Moore of South Danvers, S. B. Osborn of Salem, $2.00 each.

For the Committee,

JOHN M. IVES.

VEGETABLES.

The present season having been remarkably favorable for the growth of vegetables, "especially Root crops," the Committee take pleasure in announcing that the display was not only large, there being 47 entries from different parties, but the quality throughout the whole was much better than they had seen for many years. The Committee regret that so few specimen of onions were exhibited, in a section of the county where hitherto they have been raised in so great an abundance, in fact the onion crop has been the money making crop of the farmers of Essex County, as large quantities are exported yearly, paying good profits, and the demand has been equal to the product, but the ravages of the onion worm for the past few years have com-

pelled them to give up the cultivation of the onion and direct their attention to other crops. Much has been said and written in regard to the Onion worm, but as yet no remedy has been thought of that has proved effectual. We trust, however, that from longer experience and careful observation our farmers will be able to remove this malicious destroyer of the onion, and find their fields again yielding their former abundant crops. Our Danvers farmers turned their attention to the cultivation of sage to some extent last year, but as the demand for that herb is very limited compared with other products of their fields, we think they will never make it a staple or profitable crop.

The show of squashes was fine; Joseph W. Trask of North Beverly, exhibited 29 squashes weighing 395 pounds, all grown from one seed, nearly alike, and well ripened. Mr. Dole of South Danvers, also exhibited 4 *mammoth* squashes weighing 338 pounds from one vine. Although the committee do not think favorably of those large squashes as market varieties, yet they may be made profitable for stock-feeding, and therefore would not discourage the cultivation of them. There were also many new variety of squashes, some of which were fully worthy of cultivation. Josiah Newhall, of Lynnfield, also contributed to our tables a collection of squashes of enormous size, including a new variety from the Sandwich Islands, which he pronounces fine. Specimens of summer wheat were exhibited by Messrs Sutton, Hyde, Pettingill, Berry and Price. The committee judge from the show of wheat the present season that it will yet be one of our most important grain crops; as without doubt it can be raised with success in our county. Having had personal and valuable experience in the cultivation of summer wheat, we would recommend our farmers to turn their attention to *this* most valuable grain crop. In the spring of 1855, upon 1-2 acre of land one of the committee sowed 3 pecks of spring wheat, and in the autumn took from the same land 18 bushels of wheat, of excellent quality, which was sold to Boston seed dealers for $3½ per bu., paying better profit than any grain other crop that could have been raised from the same land. Specimens of cultivated cranberrries were exhibited by J. D. Hildreth of Manchester, and John L. Colcord, of South Danvers. Mr. Colcord states that his experiment in the cultivation of the cranberries on five

rods of land on the estate of the late John Jacobs, was commenced in 1848, the turf was removed and the meadow turned with a spade, the vines set in rows, and the meadow flowed in winter; the whole expense, twelve dollars; the quantity increased every year; the largest crop twenty bushels; the present year they are not gathered, not being ripe, or grown, until the middle of October.

The above statement speaks favorably for the cultivation of the cranberry, and proves that it can be made a profitable crop in the meadow or low lands; but the cultivation of them in our common fields or gardens, we think, has proved an entire failure by those who have attempted it, as the cranberry is a native of low damp meadows, and therefore will not thrive without great care, in dry and cultivated fields. How many of our farmers have meadows from which they take but a few tons of meadow hay valued at about $6 or $8 per ton; to all such we should suggest plowing, or spading them in the summer, when they are generally dry, and transplanting the young cranberry plants in rows, as stated by Mr. Colcord; and certainly at $3 per bushel, (with his yield,) their meadows will be made to pay much larger profit than heretofore. We noticed a few dishes of the Pomo'd Uro Lesteriano or the new Perfected Tomato, a variety much larger, more solid, earlier, and of better quality, than those generally cultivated. E. S. Poor, of South Danvers, exhibited a choice collection of *field roots*, among which, was the Globe Mangel Wortzel, a root highly esteemed by *English* and *French* cultivators, and which we would recommend as the best and most profitable root for stock-feeding. Messrs Merrill, Ware, Leavitt, Perry and Osborn exhibited very large and select collections of vegetables embracing almost every variety commonly raised by our farmers of Essex County.

The cabbages were, like the squashes, of enormous size, the Drumheads exhibited by Messrs Merrill & Ware, although very large, yet we, as yankees, would certainly discourage the cultivation of such large and coarse cabbages, preferring the smaller Savoy and Dutch varieties, which are more tender and of better quality. The potatoes were very large and of superior quality: specimens of new varieties were exhibited, some of which were very handsome.

The committee after a careful examination have awarded—

To S. A. Merrill, of Salem, for the largest and choicest collection of vegetables; first premium,	$8 00
Joseph S. Leavitt, of Salem, second premium,	6 00
Benjamin P. Ware of Marblehead, third premium,	4 00

GRATUITIES, AS FOLLOWS.

To H. & J. M. Perry, Danvers, collection of vegetables,	$2 00
Ezra Batchelder, Topsfield, on potatoes,	1 00
Wm. T. Dole, South Danvers, on mammoth squashes,	1 25
E. G. Hyde, Danvers, on wheat and corn,	1 00
D. A. Pettingill, Topsfield, for specimens of wheat	1 00
J. M. Ives, Salem, on new Nectar squash,	1 00
J. D. Hildreth, Manchester, for specimens of cranberries,	1 25
Daniel Ober, South Danvers, " " " corn,	1 00
Nathaniel Bushby, South Danvers, for collection of vegetables,	1 00
Robert Buxton, South Danvers, for specimen of potatoes,	1 25
M. H. Davis, South Danvers, collection of vegetables,	1 00
Wm. Sutton, South Danvers, for specimens of wheat,	1 00
E. G. Berry, Danvers, " " " "	1 00
John V. Stevens, South Danvers, for specimens of squashes,	1 00
James P. King, " " " " " "	1 25
Wm. Price, " " " " " wheat,	1 00
John S. Ives, Salem, for specimens of new tomatoes,	1 00
Jos. W. Trask, North Beverly, for specimens of squashes,	1 50
Howes Nourse, South Danvers, " " " herbs,	1 50
Samuel Blake, " " " " " squashes,	1 00
D. W. Putnam, " " " " " onions and corn,	1 00
Jos. Gillespie, Salem, for specimens of squashes,	1 00
Josiah Newhall, Lynnfield, for specimens of large squashes,	1 50
Jacob P. Goodale, South Danvers, for specimens of roots,	1 00
G. W. Winslow, Marblehead, collection of vegetables,	1 25
E. S. Poor, South Danvers, " " roots,	1 00
Seth R. Hill, " " Hubbard squashes,	1 25
M. F. Batchelder, South Danvers, specimens of melons,	1 00
S. B. Osborn, Salem, collection of vegetables,	2 00
N. P. C. Patterson, South Danvers, specimens of squashes,	1 00

Henry A. King, South Danvers, specimens of squashes. 1 00
John L. Colcord, " " cultivated cranberries, 1 25

JOHN S. IVES, for the Committee.

COUNTERPANES, CARPETS AND RUGS.

The Committee on counterpanes, carpetings and rugs, have attended to their duty, and make the following report.

There were no carpetings exhibited, and not so large a variety as usual of counterpanes, but quite a fair show of rugs, some of which exhibited much skill and taste.

The committee have made the following awards :

COUNTERPANES.

First premium to Mary J. Peirson of Salem,	$4 00
Second Premium to Sarah Horton, of Newburyport,	2 00

Gratuities were awarded as follows :—

To Mary P. Proctor, of South Danvers,	1 00
Esther M. Dwinal of Topsfield,	1 00
E. M. Edgerly of South Danvers,	1 00
Mrs. Hardy of South Danvers,	1 00
Emily Horton of Newburyport,	1 00
Mrs T. Porter of Salem,	1 00

RUGS.

First premium to Lydia A. Hale of Beverly,	$3 00
Second premium to Eliza T. Reed of South Danvers,	2 00

The following gratuities were awarded :—

To S. J. Moore of South Danvers,	$1 00
A. Buxton of South Danvers,	1 00
Charlotte A. Trask of Wenham,	1 00
A. Proctor of Danvers,	1 00

Ellen Stone, Marblehead,	1 00
Hannah L. Trask of South Danvers,	1 00
Mrs. O. Wilson " "	1 00
Louisa H. Skidmore of Danvers,	1 00
Abigail Goodridge of South Danvers,	1 00
A. Osborn " " "	1 00
Mary Davis of Topsfield,	1 00
E. S. Upton of South Danvers,	1 00
C. A. Chase of Manchester,	1 00

All of which is respectfully submitted by the Committee.

ROYAL A. MERRIAM,
AMOS MERRILL,
GEORGE P. DANIELS,
RICHARD TENNEY,
EBEN S. SWEETSER.

FANCY ARTICLES.

The Committee on Fancy Work, and *all* other articles not entrusted to other committees, Report, and would say with our "Illustrious predecessors," that the multiplicity of articles exhibited, renders it impossible in the limited time alloted us, and the means at our disposal, to do anything like justice to the fair contributors, or to our own feelings and judgment. We found

Fowls of the air, and Flowers of the sea,
Quilts, Blankets, Shirts, and Chemise,
Pictures in Worsted, Hair Work, and Beads,
Frames of Cones, Sea Shells, and Seeds,
Rattles, Chairs, and Papier Mache,
Capes and Slippers, worked in Crochet,
Scores and scores of things, called Tidies,
Besides Blackball, but not for ladies;
Skates, Baskets, Mats and Screens,
"The Old Oaken Bucket," and Washing Machines;
Spreads for Sofa, Chair and Table,
To name the whole we are unable.

Yet deem it our duty, and a pleasure to notice in particular some few articles. The Sea Flowers, from Mrs S. E. Greenwood, Ipswich, were very neat and beautiful; 15 imported fancy pictures, from Jona. Howard, South Danvers, struck our fancy so forcibly, we would gladly have awarded them a gratuity, had the rules of the society warranted it. Picture frame and hair work, from Mrs. E. G. Keene, Lynn, very beautiful. Wrought Blanket from Mrs. L. B. Oliver, South Danvers, very tastefully and neatly done. Some work done by young Misses, is worthy especial praise, such as the box of embroidery by Miss S. E. Martin, Salem, 14 years of age. Two Tidies by Miss Helen B. Cummings, Gloucester, 12 years; and 1 Mariposa and Lamp mat, by Miss Mary A. Gray, 13 years old. We are pleased to find the useful in the shape of some well knit socks, from Mrs. Town, Middleton. A case of prepared assorted herbs from Messrs Howe and Nourse, Salem; and fancy soap from G. E. Emery, Lynn, looked good enough to eat.

We regret we were obliged to pass unnoticed, a number of articles not entered or numbered, some of which were deserving a gratuity, which we could not award. We think the time for entering this class of goods should be extended to 12 o'clock. A large majority of the contributors cannot reach the hall before 9 o'clock A. M., and it is impossible for the clerks to enter and number *properly*, the large number of articles in this department in the time allotted; consequently the goods are not in a condition for the committee to examine them, and many contributors do not receive justice. Neither do we think the Hall should be open to the public until evening on the first day of the exhibition. The first day is committee's day, and they require the whole time to make thorough and satisfactory examinations.

We award the following gratuities:—

To H. Whittredge of Beverly, for blanket, jacket, &c.,	$1 00
Mary P. Proctor of South Danvers, for wrought chair, and table covers,	1 00
M. A. Chapin, Newburyport, 6 articles of crochet and knit work,	1 0
A. H. Perry, Salem, 2 pairs skates,	2 00
S. P. Towne, Middleton, 4 prs hose,	1 00

Abby Derby, South Danvers, embroidered pillow cases,	1 00
Bushby, South Danvers, paintings,	2 00
M. L. Pettingill, Newburyport, watch pocket,	1 50
Abi Osborn, South Danvers, hair work,	2 00
Lydia English, Salem, gilt leather picture frame,	1 00
H. C. Smith, Beverly, crochet cap,	1 00
Hattie L. Brown, South Danvers, two mats and bouquet,	1 00
S. E. Hutchinson, " " crewel work,	1 00
Mrs. S. B. Oliver, " " embroidered blanket,	2 00
N. Vickery, " " case of birds,	1 50
Mrs. T. E. Greenwood, Ipswich, pressed sea flowers.	1 00
Martha L. Riggs, Lynn, frame and card basket,	1 00
F. M. Wallis, South Danvers, book case,	1 00
Mary J. Jewett, " " 2 frames,	1 00
Mary R. Kimball, Salem, 1 picture,	1 00
C. H. Trofatter, Salem, fancy frames,	1 00
E. G. Keene, Lynn, 2 picture frames,	2 00
E. H. Powers, Boxford, wall pocket, cone work,	1 00
Samuel D. Pendar, South Danvers, 2 pictures,	1 00
S. E. Martin, South Danvers, wrought and embroidery work,	2 00
Miss Caroline L. Porter, Wenham, fancy cone basket,	1 00
Helen B. Cummings, Gloucester, 2 tidies,	1 00
M. H. Hanson, South Danvers, 1 picture,	1 00
E. T. Nichols, Salem, melodeons and pedal base,	2 00
S. P. Page, Danvers, 1 picture,	1 00

B. C. PUTNAM,
SAMUEL NEWMAN,
THOMAS BUXTON,
ALFRED HORTON,
EZRA LUMMUS,
HENRY F. SKERRY,
B. P. ADAMS.
} COMMITTEE.

ARTICLES MANUFACTURED FROM LEATHER.

The committee on articles manufactured from leather, regret that so few of these articles, and especially boots and shoes, were offered for exhibition and premium. When we consider that the manufacture of leather, and boots and shoes, takes precedence of any other manufacturing interest in Essex County, and also that this county exhibition and fair was holden in the midst of the manufacturers of these articles, it is very discouraging to the trustees of this Society and to the friends of domestic manufactures, to find so few articlespresented in this department. Two pairs of shoes only were offered for premium, which came under the schedule of the trustees. One pair of very superior tap sole, nailed men's brogans, by Frances Dane of South Danvers, to whom the committee award the first premium of two dollars. To D. H. & C. Stickney, of Groveland, one pair of men's tap sole calf brogans, two dollars. They also recommend that a gratuity of one dollar be allowed to Wm. H.Balch, of Groveland, for one pair of boys tap sole kip brogans, and one dollar for one pair of women's, stay seam tap sole calf boots. To Frances Dane, of Danvers, for the best pair of women's goat boots, one dollar. To D. H. and C. Stickney of Groveland, for one pair of women's goat skating boots, one dollar, and also one dollar for a pair of very handsome calf Dutch tap sole women's boots, making in all, only nine dollars of the forty which were so generusly appropriated to this department by the trustees.

For the Committee,

WARREN ORDWAY.

DAIRY.

The Committee on the Dairy report 13 entries of butter, and 4 of cheese, and award the premiums as follows, viz :—

BUTTER.

To Sarah Holt, Andover, the first premium, $10 00

Sarah L. Ridgeway, West Newbury, second premium,	9 00
S. C. Swan, Danvers, third premium,	8 00
Mrs. Farnham Stiles, Middleton, fourth premium,	7 00
Mrs. C. M. Moulton, West Newbury, fifth premium,	6 00

CHEESE.

To Joseph Marshall, Essex, the first premium,	$8 00
Mrs. H. M. Titcomb, West Newbury, second premium,	6 00
Mrs. D. L. Goodale, " " third premium,	4 00

For the Committee,

LEWIS ALLEN.

—

SARAH HOLT'S STATEMENT.

I present for premium 16 pounds of butter, made in September.

PROCESS OF MAKING.—Milk strained into well scalded pans, and placed in a cool cellar, to stand from 36 to 48 hours; it is then skimmed into stone pots, and stirred morning and evening. I churn twice a week. When the butter is taken from the churn it is well washed with cold water, one ounce of rock salt to the pound is then added. After standing 6 or 8 hours it is worked over and left until the next morning, when it is again worked over into lumps and put up for the market.

Andover, September, 24th, 1860.

—

SARAH L. RIDGWAY'S STATEMENT.

I present for your inspection sixteen pounds of September butter.

PROCESS OF MAKING.—The milk was strained into tin pans, and allowed to remain 36 hours in a well ventilated cellar, then skimmed into tin pails and stirred at every skimming for about three days previous to being churned. The time occupied in churning was fifteen minutes (in Gault's churn,) the butter was

immediately washed in cold water when taken from the churn, and salted to the taste with rock salt; then set away for about ten hours before being worked; in about the same length of time worked again with the hands, and made into balls as hastily as possible, without coloring, as we do not approve of it, or printing, as too much handling does not improve it.

West Newbury, Sept. 25th, 1860.

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S. B. SWAN'S STATEMENT.

I present for your inspection two boxes of butter, containing sixteen pounds, made in September.

PROCESS OF MAKING.—The milk is strained into tin pans and allowed to stand 36 hours in a cool cellar, when it is skimmed into a tin vessel. I churn twice a week—use the Air-pressure churn. The butter milk is worked out by the hands, salted to the taste with good rock salt; then set in a cool place twenty-four hours, when it is well worked and made into lumps for the market, without ornament or coloring.

Danvers, Sept. 25, 1860.

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MRS. FARNHAM STILE'S STATEMENT.

I present for your inspection a box of September butter, containing fifteen pounds. The process of making is as follows, viz.:—the milk when brought in is set on the stove, and heated to about 115 degrees, then strained into tin pans to the depth of about two inches; placed in a light, dry cellar, remaining from 24 to 36 hours, then skimmed. The cream is stirred every day, churn once a week, use a dash churn. The cream before being put into the churn is brought to a temperature of 62 degrees; time taken in churning (average) about five minutes. The butter is then salted, using about 1 1- ounces to the pound, remaining 24 hours before being made into lumps.

Middleton, Sept. 25, 1860.

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MRS. C. M. MOULTON'S STATEMENT.

I enter for premium a pot of September butter.

PROCESS OF MAKING.—The milk is strained into tin pans and

placed in a cool cellar prepared for the purpose, and allowed to stand from 36 to 48 hours according to the weather. The cream is put into a stone jar, stirred daily, and churned twice a week. The butter is thoroughly worked with the hands when taken from the churn to free it from butter milk, and salted to taste, or about one ounce rock salt to the pound. Then left in a cool place for about twenty-four hours, when it is again worked and stamped for market.

West Newbury, Sept. 25, 1860.

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JOSEPH MARSHALL'S STATEMENT.

I present for your examination four new milk cheeses. Three of them contain each the milk of two days. The process of making is as follows. Strain the evening milk and add rennet in sufficient strength and quantity to form a curd in about thirty minutes; break the curd gently, separate it from the whey, and leave it to drain until morning; then slice the curd, strain the morning's milk upon it, and repeat the process of the evening. Scald the curd with whey, drain, grind, salt with about twelve ounces of salt to thirty pounds of cheese, and press twenty-four hours.

Essex, Sept. 25th, 1860.

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MRS. H. M. TITCOMBS STATEMENT.

I offer for premium more than fifty pounds of cheese made in July, in the following manner.

The milk is set at night in tin pans; in the morning the cream is stirred in with the milk and warmed, and the morning's milk added with a third of a cupful of rennet well mixed with the milk. In half an hour the curd is formed, when it is broken and left to drain; when sufficiently drained it is sliced and put in the cellar. The next day the process is repeated; the two curds are put together with warm water enough to cover them; after remaining fifteen minutes they are drained, chopped fine, salted with Liverpool salt, allowing one ounce of salt to a pound of curd.

West Newbury, Sept. 25, 1860.

D. L. GOODALE'S STATEMENT.

I present for examination three new milk cheeses. Each cheese contains the milk of two days. My manner of making is as follows. Strain the evening milk, add rennet in sufficient strength to form a curd in thirty minutes. Let it stand one hour; then break and place to drain until morning; repeat this process with the morning's milk. Scald the curds with water, drain thoroughly, chop fine, salt and press twenty-four hours. Two of the cheeses are sage. The sage is pounded and put to soak in milk. Take one-third of the milk designed for the cheese, and strain the liquor into it; add rennet, and keep it separate from the other curd until time to chop, then mix and put to press.

West Newbury, Sept. 25, 1860.

BREAD AND HONEY.

The Committee report that there were fifteen entries of Bread and eight of Honey, and they award the following gratuities:

BREAD.

H. Whitney, Salem,		$1 00
Mrs. J. W. Wilkins, So. Danvers,		75
Mrs. W. H. Little, "		1 00
Mrs. Stimpson, "	Potato bread,	1 00
Anne Gallaghar, Salem,		1 00
Nancy I. Chase, Middleton,		1 25

HONEY.

Joseph S. Chase, Manchester,	$2 00
A. F. Bosson, Salem,	1 50
Levi Fish, Danvers,	2 00
George D. Glover, Salem,	1 50
Benjamin Becket, So. Danvers,	2 00
E. G. Hyde, Danvers,	1 50

S. H. Southwick, Danvers, 50
One Case Ground or Pulverized Herbs, Howes Nourse, Danvers, 1 50

For the Committee,

JOHN N. KENT.

POULTRY.

There were entered at this show, fowls from only eight contributors. None of these complied with the reasonable request of the Society that written statements should be furnished of the manner of rearing.

Daniel Buxton exhibited his entire family of Brahma Pootra fowls, without selection. The Committee award him a gratuity of 4 00

Robert Buxton, South Danvers,		for the same breed,	2 00
Jos. G. Basford,	"	for Seabrights,	1 00
W. P. Wilkinson,	"	for Black Spanish,	2 00
" "	"	White Bantams,	1 00

Mr. Wilkinson also exhibited a coop of crossed Dorkins, and a dwarf Bantam weighing 6 ounces, 6 months old.

John Allen, Salem, exhibited a coop of crossed Shanghai. In an attic story of the same coop he had a cock and hen Bamtam the former 13 years old. Mr. Allen informed the Committee that the lady Bantam was a second wife. The Committee gave this venerable couple, to carry them through the winter, 1 00.

William Beckett, South Danvers, for six mixed Fowls,	1 00
George E. Brock, for barn-yard Fowls,	1 00

John S. Ives exhibited some fine Bantams, and a pair of Egyptian Fowls, very rare and of singular appearance. Not being entered regularly, the Committee did not award a gratuity.

Wm. A. Gaffney, Danvers, offered a Chinese Gander and Bre-

men Goose, with their progeny of six well-grown Goslins, remarkable for size and fatness. Gratuity, 2 50

Byron Goodale, South Danvers, had two Bremen Geese, and two of their Goslins fully grown. They were as white as swans and almost as graceful. Gratuity, 2 00

Also for 13 white Ducks, 1 00

There were found on the Poultry stand two coops of a queer kind of fowl, not described in any of the books on Poultry. To the Committee they were strange birds. They could neither cackle nor crow, hiss nor cluck, quack nor gobble. They had very short tails, but no wings. Indeed, they were entirely destitute of feathers! No wonder then, that the Committee looked upon them, and they upon the Committee, with astonishment. They had neither bills nor spurs, but very long ears. They were very prolific, but lay no eggs. They were also covered all over with hair. Man has sometimes been described as a "two-legged animal without feathers," but here were four-legged creatures exhibited as poultry, without so much as a pin-feather! Had not the Committee found these strange birds on the poultry stand, they would have classed them with those interesting but mischievous pets called *Rabbits*. On the whole, they decide not to offer any gratuity until they have better evidence that they belong to the gallinaceous family.

Submitted by

FITCH POOLE,
DANIEL FRIEND,
GEORGE SPOFFORD,
RICHARD TENNEY,
E. H. LITTLE,
AMOS POOR, Jr.,
CHARLES H. ROGERS,
SUMNER SOUTHWICK.

SHEEP.

At the present time we cannot find sheep enough in the County about which to make an interesting report, and if we write, it must be about what has been, or what ought to be in it. Fifty years ago nearly every farmer's family spun their own yarn, and made the cloth for their own wear; and while this state of things existed, it was natural for each one to raise their own wool. But the erection of factories, and the improved method of making cloth, have stopped the sound of the spinning-wheel and the loom in our kitchens, and driven the sheep from our pastures.

The idea has been prevalent, that if we did not want the wool for our own families, it was more profitable to keep cows than sheep. The merino sheep fever, which raged with such violence in this County from 1812 to 1816, had an influence in causing many farmers to give up their sheep. The interruption of commerce at that time by the war with England caused the price of fine wool to rise; many sold their coarse-wooled sheep, and entered into the merino speculation, with the belief that they would soon make an ample fortune by it; but the diseases which many of them contracted on the voyage from Europe to this country, and the large number that were kept together, caused many of them to die, and the public soon came to the conclusion that they were not adapted to our climate; and those sheep which but a short time previous had been bought at one thousand or fourteen hundred dollars per head, either died or were sold for a trifle.

Hon. William Jarvis, of Weathersfield, Vermont, when he was American Consul at Lisbon, sent home large flocks in 1809, 1810 and 1811. When it was established, by actual experiment, that their wool did not deteriorate, they again rose in favor, and it was soon found that they could be easily acclimated here. At this time the Essex Merino Sheep Company was formed, and imported largely and rented farms in various parts of the County and placed them under the care of shepherds from Spain; but unfortunately they brought with them the foot-rot and the scab; and the ignorance of some of their agents, and the dis-

honesty of others soon involved the Company, and it was not long before they lost most of their flocks and all of their capital stock.

The prostration of our woolen manufactures, which took place soon after the restoration of peace with England, rendered the merino of little value, and many who had invested largely in them were ruined.

Although various other causes may have operated to lessen the number of sheep kept in the County, the more important enquiry now is, whether it is the part of good husbandry for the farmers of this County to keep sheep? One fact meets us at the outset of this enquiry, which is, as the sheep have decreased, our pastures have deteriorated. How far this has been owing to devoting them exclusively to dairy purposes, it may not be easy to determine, but we know that it is one of the inevitable results, that if we continue to take from the soil, year after year, the same ingredients without in some way restoring them, we shall sooner or later exhaust it.

Whatever may have been the cause, we know that our pastures are covered with moss, bushes and briars; and the walls thereof, if not broken down, are so settled and crooked, that they make but a poor fence for either cattle or sheep. Can we by the aid of sheep, reclaim our pastures without costing more than they are worth? Hitherto the first objection to trying it has been the dogs: now we have the dog law to protect us, so far as it goes, and if they are killed we call upon the town for pay; but timidity is one of the strong characteristics of the ovine race, and the constant yelping of the worthless curs about our streets and pastures keeps them so frightened that they will not thrive. We have been told by those who have been called upon to enforce the dog law, that they are met by the question, Who keeps sheep? Why enforce the law when there are no sheep for the dogs to kill? If the farmers kept more sheep, it would obviate this objection. It might be well for this Society to take some action that would cause the dog law to be better enforced by the town authorities.

The next objection is the want of suitable fences. It is sometimes said in answer to this objection, that if land is not worth fencing, it is not worth owning and paying the taxes upon. But

the old walls now answer as division, and the cows seeing nothing better on the other side, think it will not pay to crawl over; but sheep have a strong propensity to explore the next enclosure. This trait is more fully developed in what is called the native or Yankee sheep, than in those that have been imported recently. How far this is an hereditary trait, or the result of education, we will not decide. This disposition to ramble has caused many hard feelings between neighbors, and we would not advise any one to keep sheep to reclaim a pasture without first making a suitable fence, a rail or board fence four feet high, or a pole placed upon stone wall will make a safe enclosure. Mr. Page, of South Danvers, uses netted wire upon the top of his wall. We have seen upon Mr. Pierce's farm in Topsfield, small posts placed by the side of the wall, about 25 feet apart, set leaning so that a wire fastened to it will be over the wall about six inches above it, then another wire placed about ten inches above that. This is a cheap, and we should think a durable fence.

Another objection to keeping sheep, is that they are wild and apt to stray away. Many of the old breeds of sheep seem to have retained a large portion of the promise given to Noah when he came out of the ark — "And the fear of you and the dread of you shall be upon every beast of the earth." By good keeping and kind usage this dread has been overcome in many of the imported breeds, and they are docile and easily managed.

Some say that they do not want the care of sheep and a dairy both. Are we not at this time suffering in this County from this feeling? If we had continued more in the mixed husbandry practised fifty years ago, who doubts that our pastures would have been better than they are now? It is well for the mechanic and the manufacturer to concentrate all their powers upon one object, but the producer must not rely exclusively upon one article. We had a strong illustration of the evil of this in Ireland when the potato rot came; and the onion maggot and the cattle disease are teaching us that mixed husbandry is the safest.

Are sheep profitable? We will give a few facts which have recently come under our own observation. A neighbor of the chairman bought last December eight sheep for $2 50 each.

They were wintered upon poor hay and turnips. In July he sold eight lambs for $3 90 each; the wool was probably worth over one dollar per head. We saw Mr. Page's flock of South Danvers last winter. He had thirty. The butcher told us that he paid him $107 for the lambs they brought, and had a good bargain. We were looking at Mr. N. Pope's sheep early in June, 1859. He had five sheep, which brought him ten lambs. He said the butcher offered him $45 for the lambs a few days before. We know that good lamb sells as high in our markets in May, June and July, as good poultry does in November, December and January, and we think it can be raised much cheaper.

Sheep are very social in their habits. If many are kept they will not mate with the cows or other stock upon the farm; but if we put one or two with the cows, they soon become attached to them and seldom leave them. By beginning in this way we can keep a few sheep with our cows without much trouble.

We think that we are favorably situated in this County for raising lambs for early market. Sheep are fond of salt hay and the coarser grasses that grow upon our fresh meadows, particularly the *Osmunda Spectabiles*, or buckhorn. By giving them a small quantity of beans or corn daily, they can be wintered well, and if the lambs are sold early they will recruit before winter, even if they are required to feed our pastures closely.

There were but two entries for the premiums offered for sheep — Richard S. Fay of Lynn, and Jacob Farnham of North Andover. The Committee were unanimous in awarding to Mr. Fay the first premium of $10 for his flock of Oxford Downs ewes. Mr. Farnham exhibited a lot of grade South Downs. Some of them were good, but the Committee thought, as a whole, they were not worthy of the second premium. On some of them we noticed the marks and galls of the fetters. We cannot expect sheep to look well if they are kept fettered: in the words of one who has written much upon sheep husbandry we would say, that "fettering may be done, as a last resort, by those improvident farmers who prefer, by such troublesome, injurious and at best insecure means, to guard against that viciousness, which they might so much more easily have prevented from being acquired."

The Chairman would say, if he had been called upon to express an opinion it would have been in preference to Mr. Fay's, but the Committee on whose judgment we could rely with confidence, thought that the Cotswold buck was the best suited to the wants of this county. It cannot be expected of us to act very wisely upon a subject of which we have had so little practical experience. Mr. Fay's animal received a prize in England where he had to contend with the best bucks in the Kingdom. This is not the first time that an Englishman has been beaten by a Yankee. If we have erred in judgment, time alone can tell which is the best animal for our own wants. If at our future shows the progeny of the Oxford Downs shall be better than that of the Cotswold, the Committee will most cheerfully acknowledge that they were mistaken. In order to test the matter, we hope to see in the offer for premiums next year, a premium for the best lot of lambs, not less than four in number, not less than four nor over eight months old.

We extract the following from Spooner, an English writer: "The Cotswold is a large breed of sheep with a long and abundant fleece, and the ewes are very prolific, and good nurses. The superier hardihood of the improved Cotswold, their adaptation to common treatment, together with the prolific nature of the ewes and their abundance of milk, have obtained for them much attention. The quality of the mutton is considered superior to that of the Leicester, the tallow being less abundant with a larger development of muscle or flesh." The Cotswold sheep have a bright, intelligent look compared with the dull, dirty faced look of the Oxford Downs, but this may be an objection rather than an advantage for practical purposes. It is well to have sheep that do not know too much. If ever ignorance is bliss, it may be when our sheep do not know that there is any better feed than they enjoy. The Oxford Downs look as if they knew just enough to eat, drink, sleep and grow fat.

WM. R. PUTNAM,
BENJAMIN P. WARE,
JAMES CARR,
RICHARD TENNEY,
T. G. ORDWAY,
DANIEL G. TODD,
} COMMITTEE.

RICHARD S. FAY'S STATEMENT.

You ask me to furnish some information respecting the breed of sheep, which I have had on my farm for several years, some of which were exhibited at the Essex Agricultural Show last week, under the name of Oxfordshire Downs, by which they are now known in England. Until lately, however, they have only been recognized as half-breeds, although for more than twenty years they have been known as a distinct breed of sheep, such is the dislike in England to the introduction of new breeds in competition with old established ones.

A very good account of these sheep is to be found in the 15th vol. of the Royal Agricultural Society's Journal, 1855, page 228 and onwards, where they are spoken of as Down Cotswolds. A very good description is also given of them in a previous volume of the Journal, by W. Druce, published in 1853. A more full and complete account of this breed is given by Mr. Charles Howard, in an address before the London or Central Farmer's Club, which is quoted in the May No. of the Farmer's Magazine for this year, page 401. What you find stated there, is confirmed by my own experience; and after seven years' trial I am satisfied that there are no sheep so well adapted to New England as these. From my full and 7-8 breeds, consisting of 52 ewes, I had this season 73 lambs, which were dropped in February and March, all of which did well. These ewes yielded an average of 7 pounds unwashed wool, some going as high as 12 pounds 6 ounces, worth 35 cents per pound. I claim for them superiority over other sheep, for "their hardiness of constitution, large frames, good fleeces, aptitude to fatten, and mutton of superior quality." My original flock I selected from the one belonging to Mr. Wm. Gillett of South-Leigh, mentioned in the first article referred to. The ram exhibited before your committee was from W. Bryan's flock, a successor to Mr. Gillett. He is a shearling ram, weighing 245 pounds, and is unquestionably the finest specimen of the breed ever imported. I regret that my engagements were such that I could not furnish you with this information when the animals were exhibited. I am happy, however, to hear that sheep breeders who saw them were fully impressed with their excellence.

Linmere, Oct. 1, 1860.

CHARLES CORLISS'S STATEMENT.

I wish to enter for premium at the Essex Agricultural Society Show, my pure blood Cotswold buck, "Dr. Kane." He was bred by George C. Hitchcock, of Ash Grove, New Preston, Ct., from his celebrated imported buck, "Cedric," and out of an imported ewe, and has been owned by me one year. "Dr. Kane" is eighteen months old and weighs about two hundred pounds. His fleece sheared the 12th of May last, weighed eleven pounds. He is now in thin flesh, but in excellent health, and in good breeding condition. I also send for exhibition eight ewe lambs got by "Dr. Kane" out of common ewes; their average weight is eighty pounds each.

Poplar Lawn, Haverhill, Sept. 21, 1860.

SWINE.

The Committee on Swine award the following premiums:—

D. Richards, Danvers, boar, 1st premium,	$5 00
Byron Goodale, S. Danvers, do., 2d premium,	3 00
" " " breeding sow, 1st premium,	5 00
Benj. P. Ware, Marblehead, " " 2d "	3 00
Theron Johnson, N. Andover, weaned pigs, 1st premium,	5 00

No animal was presented that came within the requirements for the 2d premium for weaned pigs.

L. MAYNARD,
JOS. F. INGALLS,
M. C. ADAMS,
GEO. ADAMS,
JOHN LEE,
WM. FOSTER,
MOSES H. POOR.

COLTS.

Your Committee found twenty-three entries under this head, quite a number of which were very superior animals, but, taken as a whole, hardly equal to our expectations; the Society offering no premiums the present year for neat stock, we were looking for a larger and finer display of colts than usual.

There are those in the County extensively engaged in raising colts, who did not present their animals from the fact that they felt the facilities for the exhibition and trial of them were not sufficient; but, as before said, there were some very superior animals on the field.

We would make the following awards:

Yearlings.

1st premium,	Gilbert Conant, Ipswich,	4 00
2d "	Abiel Wilson, N. Andover,	2 00

Two Years Old.

1st premium,	James Cary, Swampscot,	5 00
2d "	Thomas Sawyer, Boxford,	3 00

Three Years Old.

1st premium,	George Dane, Hamilton,	6 00
2d "	John Rowe, Haverhill,	4 00

Four Years Old.

1st premium,	George B. Loring, Salem,	7 00
2d "	Luther Noyes, Newbury,	5 00

The Committee were unanimous in awarding to Edward Pyne, of Gloucester, the second premium for his four year old colt; but upon the second day of the show they learned that he was not brought into the County until about twelve months old; and the case being referred to the Society, they decided that he was not, for that reason, a legal competitor. Your Committee award a gratuity of $3 00 to Mr. Pyne.

PAUL TITCOMB, for the Committee.

DRAFT AND FARM HORSES.

The Committee on Draft and Farm Horses report, that nine horses were entered to compete for premium; all of which were upon the ground, and performed the work well. The load drawn weighed 4500 lbs. in a wagon weighing 1050 lbs.—over 2 1-2 tons, a load heavy enough to test the strength and disposition of any horse. Upon the 1st premium the Committee were unanimous, the load being drawn and backed, and handled with as much ease and as quietly, by a horse weighing only 835 lbs. as by those weighing 1110 to 1250 lbs. Upon the 2d and 3d premiums your Committee differed, and regret that there were no more premiums to help them out of the dilemma, and which might have been bestowed upon animals every way worthy. However, after a full discussion, each member of the Committee fully expressing his opinion, they award the premiums as follows:—

Jacob Farnham, N. Andover, for his horse "Postmaster," 1st premium,	10 00
Abiel Wilson, N. Andover, 2d premium,	8 00
John Perkins, South Danvers, 3d premium.	6 00

JOSEPH NEWELL,
HENRY A. KING,
WILLIAM POTTER,
JAS. STEVENS,
IRA P. POPE,
JON. BERRY,
WM. OSBORN,
} COMMITTEE.

BROOD MARES.

The Committee on Brood Mares award the following premiums, viz.:—

1st premium,	Frederick Perley, Danvers,	10 00
2d "	Joel Putnam, Danvers,	8 00
3d "	Horace Ware, Marblehead,	6 00

JOSIAH CROSBY, CHAIRMAN.

STALLIONS.

The Committee on Stallions attended to the duty assigned them, and report that there were eleven entries of this description of horses. The Committee are unanimous in awarding for stallions four years old and over, the 1st premium of $15 00 to Simeon Bardwell, of Andover, for his four year old stallion. The 2d, of $10 00, to Thomas Sawyer, of Boxford. For stallions under four years old they award the 1st premium of $7 00 to Henry L. Hill, of North Andover, for his two year old. The 2d, of $5 00, to M. F. Hill, of Byfield, for his three year old.

HORACE WARE,
for the Committee.

PLOUGHING WITH HORSES.

In consequence of the disease among cattle, no premium was offered for ploughing with ox teams, consequently the trustees have offered more liberal premiums on horse teams, having largely increased the number and also the amount offered, hoping thereby to call out a large number of competitors. A one-horse mower was presented by the manufacturer, Alzirus Brown of Worcester, valued at $75, which is offered for the first premium.

Thirteen teams were entered for premium, but only eleven appeared on the ground. There was some difference in the lands, some being gravelly with pebble-stones, so that it was difficult ploughing the depth required.

The Committee recommend the following premiums:—

1st premium of a horse mower, to Daniel Richards, of Danvers.

2d premium,	Jacob Farnham, N. Andover,	15	00
3d "	Joseph Longfellow, Newbury,	12	00
4th "	Robert Brookhouse, jr., Marblehead,	9	00
5th "	Samuel A. Merrill, Salem,	7	00
6th "	E. G. Berry, Danvers,	5	00
7th "	J. H. Lovett, South Danvers,	3	00

A well chosen spot was selected for ploughing, it being a rectangle, the lots well proportioned, about nine rods long by three wide, making about one-sixth of an acre, rising on either side, which gave the spectators a good opportunity of overlooking the scene. The ground was rather hard with pebble-stones, which is not undesirable to try the skill of the ploughman. The premiums were well contested for, and the work well done. There were seven kinds of ploughs used; but as different individuals have their preferences, the Committee will not give their opinion as to their comparative value.

The Committee were reminded of the importance of heavy ploughs and strong teams on hard land, as a heavy plough is much less disturbed by pebble-stones than are lighter ones; hence the cause of new ploughs making better work on hard land than old ones, because ploughs grow lighter by wear, and a strong team will make better work than a light one, as the team will pass on more steadily.

The time occupied in ploughing was from 34 to 50 minutes—about the same length of time as has been usually occupied in ploughing with ox teams. Possibly, however, they might have ploughed a little quicker, had it not been understood that the Committee were not favorable to excessively quick ploughing. Horses will usually plough more in a given time than oxen. Every wise and judicious farmer will study the principles of economy, and profit in all the departments of farming. Hence the question often arises, which is the most profitable to perform farm work, oxen or horses; or if both are kept, how many of each? This depends upon circumstances. For ploughing and harrowing on easy land, horses will work to good advantage. Also for teaming on the road, of which almost every farmer has more or less to do, horses in most cases are preferable to oxen, as they will travel quicker, and are better able to bear the

heat in warm weather. They are also better for soiling; and as most of our pastures are poor, working animals for the most part must be kept on hay and grain during the year. And further, as labor-saving machinery increases, horse labor also increases, as most of it is operated by horses, such as mowing, reaping and raking; also various kinds of implements that are used on cultivated land to save the use of the hoe. They are also used more than formerly for almost all kinds of farm culture, especially getting in hay, as they will travel much quicker, especially when returning from the barn to the field. There are various other kinds of business which are to be performed exclusively with horses.

There are also important considerations in favor of oxen. Their cost is much less than horses: the cost of harness in which to work them is also less. They are better adapted to some kinds of work, such as removing heavy stones, ploughing rough land, and performing various other kinds of heavy work; and when past labor in consequence of old age or misfortune, they are fattened and turned to the butcher, while the horse is worthless.

As it has been before said, every farmer should be governed by the circumstances in which he is placed, and not depend too much upon the example or advice of his neighbors. He should consider the labor to be performed, the means of keeping, and all the other circumstances; and then pursue such a course as wisdom directs.

JOSEPH HOW,
JOHN D. CROSS,
PAUL D. PATCH,
JAMES P. KING,
JESSE SMITH,
JOHN KNIGHT, Jr.
JONATHAN BERRY,
JOHN N. KENT,
DANIEL BUTLER,
CHAS. NEWHALL,
} COMMITTEE.

FARM IMPLEMENTS.

The Committee on Farm Implements respectfully report: —

That they do not understand that the duties assigned to them require them to pass upon the comparative merits of competing implements, but only to award gratuities for such as best commend themselves to the Committee, the sum put into their hands being limited to 20 dollars.

We therefore make the following awards, subject to the final decision of the Trustees:

George H. Pearson, Salem, for Wagon,	2 00
E. A. Barbank, Salem, for wagon,	2 00
Gilman Andrews, Salem, for 2 Wagons,	3 00
Richard Cutts, Salem, for Wagon,	2 00
Fisk Russell, Manchester, N. H., for Mowing Machine,	2 00
Samuel A. Merrill, Salem, one-horse Buckeye Mower,	2 00
" " " two-horse Mower,	1 50
Alzirus Brown, Worcester, spring-tooth Horse Rake,	2 00
Wentworth & Fifield, Salem, patent Harrow Tooth,	1 00
Luther Thayer, Brighton, Feed Cutter,	1 00
For Kidder's Patent Bee-hive, exhibited by Moses Jewett,	1 00
For Waterman's Patent Water-Hoisting Apparatus,	1 00

As the reports upon farm implements have been, for a series of years, with the exception of 1859, occupied largely in discussing the merits of Mowing Machines, and as no mower of a materially different construction from those exhibited on former occasions has been exhibited the present year, the Committee do not propose to enlarge upon the merits or demerits of that important machine. This silence of the Committee is not, however, to be construed into any want of appreciation of the intrinsic value of the three kinds of machines offered for their inspection, viz.: Manny's, the Buckeye, and Russell's. The *working* of the mower is the true test, and this the Committee have had no opportunity of witnessing. As to the *appearance* of Russell's Mower, the Committee will only say, they were most agreeably impressed with the action of the knives, and the ease with which they could be removed and replaced. Their drawing stroke has been remarked by former committees with

approbation, and it may be added that the fastening is a substantial screw instead of a rivet, as in others, clearly having an advantage over it, constructed as these screws are.

Manny's and the Buckeye Mowers were on exhibition, but require no remark after the full reports of former years.

The Carriages exhibited seem not to belong to *farm implements*, and in former years have been referred to a special committee. As no such committee, however, was appointed for the present year, we have noticed them in our partial report on the day of the Show.

The Horse Rake of Mr. Brown, of Worcester, called Whitcomb's Horse Hay Rake, was exhibited at the Show. We were informed that this rake does not compress the hay like the revolving rake. There must be an advantage in this, as it is often difficult to roll the hay up, especially if it be herd's grass, when raked with the revolving rake. As the weight of this rake is supported by wheels, the pressure upon the teeth can be graduated to suit the surface. Almost every thing will depend on the elasticity of the teeth, and the manufacturer seems to have succeeded in securing this object. The teeth can be adjusted so as to collect grain even where it is scattering, and yet to go clear of the ground.

Ford's Chilled Cultivator and Harrow Tooth was on exhibition. This is gaining in public favor and is evidently designed to do good service.

A variety of Stoves were noticed by the Committee, but no one was present to explain their peculiarities.

Waterman's Patent Water-Hoisting Apparatus is ingenious, and for persons who dislike pumps it would be a valuable acquisition. During the cold weather it might fail from freezing, but would be worth trial ; the price is seven dollars.

Kidder's patent bee hive was shown by Mr. Jewett ; and the difference between this and Langstroth's explained, but no one of the committee claim to be sufficiently acquainted with the subject to appreciate it in the short time at our command.

A small engine called the Little Wonder or Vose's Fire Annihilator was put on trial. It is said to throw water 50 feet, and yet weighs but 8 pounds. It must be effective in washing upper windows, and might extinguish fire upon the roof of a building

under favorable circumstances· The cost of this engine is $10.

The Green Mountain Feed Cutters so called, manufactured by Luther Thayer of Brighton, certainly exerts great power. It is stated in the bills that it will cut hay for 96 horses, working two thirds of the time. The operator experimented by cutting pine board an inch square, which it did with great ease. It cuts 60 square inches at a stroke as the committee were informed.

Hawse's patent folding and elevating Clothes Dryer, and Clarke's patent Clothes Wringing machine, both bid fair to become woman's friend, and the family benefactor. The dryer spreads 135 feet of line. It lowers down to a convenenient position to hang clothes on, and is again elevated by means of a pulley. The easy washer belongs in the same category, and should indeed have had the first notice in the order of time. We are told that 180 of them have been sold in a town of 3860 inhabitants, at $5 each. The Clothes Wringer also commended itself to the committee and does not appear to require great skill in the use, while it must take much hard work off the women.

The Carpet Sweeper is an advance on former ones, having a rubber band, and being noiseless in its working. It cleans by turning *either way* and raises none or very little dust.

A little Camp Stool so called, was shown the committee, being so constructed that it can be easily carried under the arm yet when spread makes a perfect seat, very convenient to carry into a crowded church or hall, where no other seat can be had. Price, 50 cents.

We have now giving a passing notice of the implements examined by the committee, so far as can be recollected, and close by saying a word on the *price* of farm implements generally.

It was a wise remark of the Committee on farm implements last year, that the great drawback is the *cost*. The Patent Office may be enlarged to contain the accumulated models until the *District of Columbia* shall be too small for it, and the machinery, however ingenious and useful, will much of it remain uncalled for, if prices are as extravagant as they often are. The first question almost, of a committee on farm implements, should be that which a London Jew asks, when invited to go to Brighton, viz, *what will it cost?* It is surprising that the price of a new invention should not be put *decidedly low*, even below the cost,

from motives of policy, because when the thing is fairly in the market, if it proves useful, an advanced price can be charged and the public will pay it. We hope that on this topic it will be found that a word to the wise may be sufficient.

DAVID CHOATE, Chairman.

IMPROVING WET MEADOW AND SWAMP LANDS.

The Committee on Improving Wet Meadow and Swamp Lands submit the following report:—

Leverett Bradley, of Methuen, having entered the only claim for premium, three of your Committee — Messrs. Stevens, Swan and Keely—viewed his meadow on the 11th of July. We found it to be a continuation of the same tract of meadow for the reclaiming of which Mr. B. received the 1st premium of this Society in 1848. That part was on the river side of the highway: this is on the opposite side, and lies quite near to the now venerable mansion in which he resides.

By about 150 rods of ditching, done in the spring of 1858, the water was brought down from the meadow to the main ditch of the lower meadow, and passed off to the river. It was in this lower ditch that Mr. B., by the work of a few minutes only, dammed the water so effectually as to irrigate the whole meadow, during the drought of last spring, to the manifest benefit of the crop.

Mr. B.'s mode of operating, was to cut with axes the surface of the meadow into strips about a foot wide, and then to follow with heavy picks, rolling up the strip with all it contained; thus peeling the whole meadow of its surface, not excepting even the stumps. When the fire had reduced all this amount of rubbish to ashes, there was left for cultivation a new surface of the richest material, free from all obstructions.

It will be seen by the statement, that while the shallow part was ploughed with oxen, (at the close of last November,) the

deep part was ploughed with a horse. In answer to our enquiries on this point, Mr. B. showed us some fixtures answering somewhat the same purpose as *snow-shoes*, which were securely strapped on to each foot of the horse, enabling him to draw heavily, where oxen, *at that time*, would have sunk into the soft soil.

As we walked over the dry soil, covered with a most luxurious crop, it really seemed almost fabulous, that so recently it could have been the thick, tangled, wooded morass — ten cords per acre — that it was described to be, and just such as we saw on the other side of the fence.

It will be seen that the whole was accomplished by *manual* labor. Ordinarily this mode of operating might have proved too expensive. But Mr. B. showed his tact by striking at the right time; thus benefitting the laborers, by giving them employment when they were suffering for want of it, and accomplishing a difficult undertaking when the low price of labor actually left a large margin for profit. Mr. B. estimates the whole expense at $75 per acre.

If we may be excused for stepping aside from our specific duty, we would state that as we passed through Mr. B.'s premises, we were much pleased with his singularly judicious arrangements for making manure. The rich muck from his meadow in a dry state, is carted less than one-eighth of a mile up an ascent so easy, that a pair of oxen could draw a cart full. It is thrown into his slaughter yard, and mixed with the offal of a large butchering establishment, absorbing the effluvia so entirely as to prevent all unpleasant smell. It is then removed to form a bank, protected from the wind and sun by a high close board fence on one side, and a row of shade trees overhanging. His men were then shoveling over more than 200 cords of such manure as a poor farmer might almost be forgiven for coveting. In passing we would commend Mr. B.'s manure-making establishment to the attention of your Committee on Manures.

We recommend that Mr. Bradley receive your 1st premium of $15 00.

JOHN KEELY,
S. B. SWAN,
JAMES STEVENS,
D. M. TUKESBURY.

LEVERETT BRADLEY'S STATEMENT.

The meadow that I offer for premium contains about 8 acres. In the winter of 1857—8, I cut the wood and bushes, paying $1 per cord including the cutting of the bushes. It averaged 10 cords to the acre. Early in the spring of 1858, before the frost was out of the meadow, the wood was drawn off and the bushes burnt. The deep part of the meadow averages 8 feet; but in some places we have thrust a pole 18 feet into the muck. This part was thoroughly drained by open ditches 6 feet deep, 5 1-2 feet wide at the surface sloping to the bottom. The other part averaging about 2 1-2 feet deep, was also drained by similar ditches, but smaller. I paid for the ditching from 25 to 30 cents per rod. The muck taken out was mostly carted to the yards.

I had no intention of reclaiming this meadow until the 15th of May. At that time the mamufacturing business was nearly suspended in the neighboring city of Lawrence. At the corners of the streets stood anxious groups of laborers wishing for work. I put up a notice that 25 able bodied men were wanted to work on the Bradley farm. The next morning came scores. I picked out 50 stout, hardy men, and marched them to the field of action, where we won one of the hardest fought battles of a similar nature in Essex County. The contest ended Saturday night, July 3d.

The *deep* part of the meadow, containing 4 acres, was completely pealed. The *rind* consisting of stumps, roots, moss, vegetable matter, &c., was piled up and burnt. The other part also containing 4 acres, together with 4 acres of upland adjoining, was grubbed, making in all 12 acres—all of which was *pealed* and *grubbed* or *ploughed*, entirely by *manual labor*.

The *deep* part of the meadow was planted with potatoes, putting the ashes into the hills. The other part with the upland was planted with squashes, putting the ashes into the hills—planting done the last week in June. Probably there was never seen a more luxuriant growth of vines in Essex County. But the early frost in August nearly destroyed both potatoes and squash vines. The warm weather following immediately after, so far revived them as that they averaged half a crop.

In 1859 the deep part of the meadow was planted with pota-

toes with no manure, yielding about 200 bushels per acre. The other part of the meadow with the upland was planted with corn, also without manure. Both parts were planted the last of May. The crop of corn was good for the season.

In the latter part of November the whole was ploughed ; the deep part with a horse, the other with oxen, and all sown with winter rye and grass seed, except about 3-4 of an acre of deep part of meadow.

The present year, 1860, the 3-4 acre, and also a small piece adjoining, where the muck had all been carted off, were planted with potatoes. The latter piece was slightly manured. Judging from what have been dug, there will be 200 bushels on the 3-4 acre, and about two thirds of that yield on the other piece.

The winter rye sown in November, peeped out with the young blades of grass. In the spring the plants looked well until the heaving frost threw them out. I immediately passed a stone roller over the whole, and filled the ditches with water by damming below. Whether or not this was of service, you can judge by your own observation.

The rye was gathered in good order. Judging from what I have threshed, the average yield would be 22 or 23 bushels per acre. Some acres will yield 30 bushels or more.

My men are now cutting half a ton per acre where the rye grew.

Methuen, Sept. 26, 1860.

UNDER-DRAINING.

Your Committee have had but very little service to perform during the year past. But one claim has been presented for the premiums, and that was by George French of North Andover.

The committee were duly notified to meet at the house of Mr. French on the 16th of August. Mr. Morrison of Rowley, and

Mr. Nelson of Georgetown did not appear. Mr. Bodwell of Lawrence, and Mr. Mott of Andover, were present, and with the chairman proceeded to examine the lands which had been the scene of Mr. French's operations and which by a comparison with similar adjoining lands, which had been left in a state of nature, evidently appeared to have been greatly improved.

The land in question was not meadow or bog, but was springy and lay at the foot of an extensive slope of higher land, from which it would naturally receive much more water than fell from the atmosphere or rose from springs within itself. This wash or percolation of water from the adjacent lands was judiciously prevented by an open drain on three sides, which drain alone would probably have much improved the lands but could never have carried its fertility to the extent shown by Mr. French's clear statement accompanying this report.

No intelligent person can visit the improved land of Mr. French without being convinced that we have large tracts of land in this County susceptible of like improvement, or by effectual drainage in such manner as the different locations of the lands would most readily and economically admit.

Much land is saved by covering the drain, and by sinking the drain deeper than it would be safe or convenient to have open a more thorough drainage is effected. The use of the cart and plough is rendered much more convenient during subsequent tillage, and a great saving is made of soil and manure which would necessarily be washed into open ditches.

We frequently see swamps bearing small crops of poor hay, or covered with brush and bushes, which it is evident upon the slightest inspection are susceptible of great improvement by draining. Wherever the crop suffers by cold springs or stagnant water or a surplus of water of any kind, it is obvious that draining should be applied, but we could hardly agree with some writers who seem to think that almost all of our land would be greatly improved by an extensive system of under-draining; indeed some have gone so far as to maintain that it is a remedy for drought, rendering dry land more damp and fertile, illustrating their ideas, by a supposition that the admission of air through an extensive system of under-draining is useful, either as air by being a medium of conveying beneath the soil the water

of the atmosphere. In this theory we have no belief, and had we a dry, gravelly pasture or a sandy plain, we would much sooner dig ditches to convey warm brook or river water over it than out from under it.

The principle is a very plain one. If any piece of land has too much water in or on it, drain it, to save space and make the tillage convenient under-drain it. If too dry supply it with water from any convenient source. Few dry sandy plains, however, are so situated as to receive the benefit of irrigation; the benefit of which where it is applicable, is just as well established as the benefit of under-draining in the damp and drizzly climate of England, and in bogs and swamps in this country.

The immense fertility of Egypt in all ages is the effect of applying water to the growing crops—and Moevis, a lake much too large to allow us to credit the belief that it is the work of human hands, has been used since the times of Joseph to retain the waters of the Nile, for use in watering crops during the drouth of summer.

Soil from the hills has been accumulating in the vallies through all past ages and it is our interest to bring them into use. Our peat meadows where they can be drained and are not wanted for fuel, have an excellent, deep and fertile soil, and the writer, a few years since, saw large smooth and handsome potatoes growing on a peat meadow on the farm of Daniel Putnam, of Danvers. How the land has been improved since and how such potatoes are or would be affected by the prevalent disease is a subject worthy of enquiry.

As to the mode and materials of under-draining we have no doubt that Mr. French pursued the best course and used the most suitable material for that particular improvement. Stones were in abundance on the lot and were to be disposed of, he therefore filled his three feet ditches up to within a foot of the surface after making a stone bridge in the bottom of about six inches square.

Probably quite as good drains may be made with tile, which in many localities would not only be best but cheapest.

The committee unanimously recommend that Mr. French receive the first premium of the Society, fifteen dollars.

All of which is submitted.

10 JEREMIAH SPOFFORD, Chairman.

GEORGE FRENCH'S STATEMENT.

The lot of land I offer for inspection and premium contains about three and one half acres. It being part of a lot of five and one half acres which I purchased in 1856.

The three and one half acres I have drained at a cost of seventy two cents per rod.

I have also left open drains on two sides of the lot, about forty rods in length, which cost about fifteen cents per rod.

The length of the covered drains is in all, one hundred and sixty-five rods. They were dug two and one half feet deep and two feet wide, laid with stone, leaving a space of six inches square for water to run in and covered with stone to within a foot of the surface of the ground, and after placing a light coating of meadow hay on top, the soil was thrown in till the ground was made level.

Said ditches were run parallel to each other at equal distances and emptied into a main drain as shown by the plan.

I have raised on it this year the following crops. On two acres I raised one hundred and twelve bushels of barley. The straw as it was taken from the lot, before being thrashed, weighed five and three quarters tons. I also cut on the same ground three tons and eleven hundred weight of second crop after being well made.

One acre planted with corn and potatoes produced eighty-four bushels ears of corn and forty-seven bushels potatoes.

The rest of the land was in grass and yielded two very good crops, but as it was not weighed I am unable to give the amount.

At the time the land above entered for premium was purchased, it produced not more than one thousand pounds hay to the acre and that of a very poor quality.

North Andover, October 26th, 1860.

IMPROVING PASTURE AND WASTE LANDS.

The Committee, (but one having attended to duty,) would report that there were three entries for premium, one from Paul T. Winkley, of Newburyport, one from Jonas Holt of Andover, and one verbally from Oliver Porter, of Hamilton.

The Chairman of this Committee visited the pieces of land they entered, and with Messrs. Ives and Kittredge (appointed by the Trustees) report that the first premium of fifteen dollars be awarded to Jonas Holt, of Andover; the second premium of ten dollars be awarded to Paul T. Winkley, of Newburyport.

JOHN B. JENKINS, CHAIRMAN.

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JONAS HOLT'S STATEMENT.

The piece of land which I present for premium contains about 3 acres within its walls; about one acre and three fourths was ploughed in 1813, not having had much done to it since it was almost covered with brakes and bushes.

The other acre and 1-4th was partly run and partly swale land, the run and swale were both very wet, the part that had been ploughed was partly a gravelly soil and partly a stiff loam resting upon a hard pan. My first object was to get rid of the water; for this purpose I cut a ditch through the center of the run 21 rods, 3 feet wide and 2 feet 6 inches deep; there was so much water at the time that it was very slow digging. This ditch cost me 40 cents per rod. In the bottom of this ditch I laid a good stone drain and then filled the ditch with small stones. I then dug five short ditches on the sides of this main ditch to drain the land on the east and west sides, running nearly at right angles with and emptying into the main ditch. In these short ditches I laid stone drains and covered them deep enough to plough over ; the result was, the land is all dry enough to plough; the short drains however were not dug until after the land was ploughed. As this piece of land was considered of little value I determined to try what deep ploughing and thorough cultivation would do; the land was not considered

worth more than 20 dollars per acre when I commenced on it, and now I think it is worth 60 or 70 dollars per acre and *will* pay the interest on it and more too.

A statement of the cost and the amount of crop with its value is herewith annexed.

1858.		
Nov.	21 rods of ditch at 40 cents per rod,	$8 40
	To laying drain and filling the same,	5 00
	To ploughing one day with 8 oxen and 4 hands,	12 00
	Use of plough,	75
		$26 15
1859.		
May.	2 days ploughing with 6 oxen and 3 hands,	$8 00
	Use of plough,	1 00
	Harrowing,	2 00
	30 loads of manure,	15 00
	Planting and seed,	12 00
	Hoeing once,	6 00
	Harvesting,	4 00
Sept.	20 rods of under-drain, at 40 cents per rod,	8 00
		$56 00
	Credit by 80 bushels of potatoes at 50 cents,	40 00
	" " 20 bushels corn, $1,	20 00
	" " 60 bushels turnips, 20 cents,	12 00
	" " 4 bushels tomatoes, 40 cents,	1 60
		$73 60
	Expense,	$82 15
	Value of crop,	73 60
		$8 55
1859.		
Oct.	To digging and filling 16 rods of ditch,	$8 00
	Ploughing 3 days, with 1 pair oxen and 1 hand,	7 00
	Use of plough,	1 20
		16 20

Total expense up to December 1st, 1859,	$98 35
Income to the same date,	73 60
Leaving the land in debt to me,	$24 75

To this add the interest on the land at $20 per acre, $3.60, will leave the balance against the land, $25 35

1860.

May. To 12 rods of ditch dug and filled,	6 00
To ploughing and harrowing,	8 00
To planting and seed,	12 00
To hoeing three times,	15 00
To cutting, binding and carrying stalks,	2 50
To 70 loads of manure, half its value,	35 00
	$103 85

Credit for the present year, 4 bushels of peas,	$4 00
43 bushels Chenango potatoes, at 50 cents,	21 50
30 " St. Helena potatoes, 45 cents,	13 50
20 " Davis seedling, " " "	9 00
28 " Bradstreet " " "	12 60
8 " Tomatoes, 50 cents,	4 00
1 " Beans, 1 dollar,	1 00
300 " bundles of stalks,	6 00
120 baskets of corn,	60 00
6 " soft "	1 00
1000 Cabbages, at 4 cents,	40 00
	$172 60
Deduct expenses,	103 85
	$68 75
Deduct one day's work ploughing in May,	8 00
	$60 75

I then have a clear gain of $60.75, besides the extra value of the land. You will see that I have charged nothing for harvesting the corn; I thought the butts worth enough to pay for harvesting, so I gave no credit for the corn fodder and charged nothing for the harvesting. I ploughed this piece of ground 10 inches

deep, and turned up so much of the cold subsoil that I think my first crop was not as good as it would have been had I ploughed shallower, but I am satisfied the land for after crops, will amply pay for the meager crop I got at first.

You will see that I have charged but half the worth of the manure, as I calculate one half of the value of the manure should be charged to the land and one half to the crop.

Andover, Nov. 8, 1860.

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PAUL T. WINKLEY'S STATEMENT.

The piece of waste land which I offer for the inspection and consideration of the committee, contains about 15 acres. It was worthless before I commenced improving it because it did not produce anything of any value. It was covered with bushes and moss, such as wild rose bushes, iron bushes, bayberry bushes, &c. Some of the bushes we cut and burned on the ground and some we ploughed in. The soil is a clay loam. We ploughed about 8 acres of it in the summer of 1857, in wet weather when we could not do anything else to advantage. Thus ploughing in all that was green to decompose previous to ploughing in the following spring when it was cross ploughed, and about 6 acres of it manured with as much manure as could be ploughed in. The remainder was ploughed and harrowed, and not planted, as I do not think that it pays to plant and hoe without manure. All that was manured was planted to corn, but on account of the wet and cold weather it was not planted until the 5th and 6th of June, hence it was not very sound corn. In 1859 that which had been planted to corn, was sowed to barley and grass seed, and it was a good crop. This year we have cut two large crops of clover and herds grass.

In the summer of 1858 the remainder was ploughed, and last year, (1859,) it was manured, ploughed, and planted to corn and Ruta Baga. The corn did not get ripe and not a very good crop. The Ruta Bagas was a fair crop. This year 5 acres of it were sowed with 6 bushels wheat and grass seed, and 4 acres to barley and grass seed. The wheat produced 90 bushels, the barley 100 bushels.

I have put on the whole piece 1000 loads of stable and barn yard manure, half a cord to the load which I charge to the land, $2000. The crops which I have received I calculate will pay the expense of cultivating and applying the manure, so that the land is now indebted to me $2000.

This I expect to receive back again principal and interest in 5 years in hay and fall feed, so that I shall gain by the operation at the end of 8 years the value of the land which will be at least $100 per acre.

Newburyport Nov. 1, 1860.

GRAIN CROPS.

The Committee on Grain and Hay Crops have attended to the subject referred to them, and report that there were exhibited for premium one crop of rye, four crops of wheat, a crop of barley, a crop of corn, and a crop of hay. Some of the Committee visited the rye crop on the farm of Mr. Bradley, on the 20th of July last, and were favorably impressed with the improvement which he has made in this lot of boggy land, which he has reclaimed from nearly worthless land, (as that adjoining appears to be) to a beautiful field; and we would recommend his successful experiment to our farmers, who have similar land, and think they will be richly repaid for the trial, as his statement will show that his experiment has been a profitable one. It is not necessary for us to remark further on the subject, as the committee on reclaimed lands will doubtless do him ample justice. We consider him a model farmer, and award him the premium of $8.00 for his crop.

The committee regret that their limited appropriation compels them to pass over several crops of wheat, which seem to us entitled to a premium; as they believe that wheat is an important crop and can be successfully cultivated in this county,

judging from the success of the small number of farmers who have attempted its culture.

The Committee award to Joseph Newell, of West Newbury, for his wheat crop, $8.00; and would recommend a gratuity of three dollars each to Messrs. Berry, Pettengill, and Todd, for their crops of wheat.

There was but one crop of barley entered for premium, which was by John L. Hubbard of Newbury. Mr. Hubbard supposed his land contained one acre, until surveyed, when it was found to fall short fourteen rods; but in consideration of his large crop, which was fifty-two and one-third bushels to the acre, we recommend a gratuity of eight dollars.

There was but one crop of Indian corn entered for premium, which was by John C. Adams of Newbury, for which we award the premium of ten dollars.

A crop of English hay was entered for premium by James Manning of Hamilton, for which we award the premium of eight dollars.

JAMES P. KING,
MARSHALL C. ADAMS, } COMMITTEE.
J. LONGFELLOW,

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LEVERETT BRADLEY'S STATEMENT.

The crop of Winter Rye I offer for premium, grew upon the northeasterly part of the field of rye, which you visited the first part of July last, containing 1 1-8 acres. It produced 36 1-2 bush. (56 lbs. to the bush.) and 1 1-4 tons straw, as per certificates annexed. This part of the field I enter for premium the soil would average in depth about with the whole field (10 acres) from 2 1-2 to 3 feet. I measured another part where the soil, or muck, averaged 15 feet in depth, lying on the south side, and about mid-way of the whole field, containing 3-4 of an acre, which produced 25 bushels rye and one ton straw. The crop of rye upon the whole field, of ten acres, produced well and harvested in good order. Those who purchased the rye and straw, spoke in high terms of the good quality of each.

Whole amount of rye: whole field, 10 acres, 250 bushels;

straw, 13 1-2 tons. Sold the rye in Lawrence at from 90c to $1 per bushel; straw $12 per ton delivered at same place.

The rye and straw of the first and second of the above named parts, grew upon the reclaimed land which I also enter for premium. The whole field of rye was sown late in Nov. 1859. After it came up this spring, it was interrupted in its growth greatly by frosts and drouth. The whole field was cleared in the spring of 1858, and has produced good crops for three successive years, and of the last (this year) you have the result, excepting the part planted with potatoes. *No manure* has been used in producing the above named crops, either of the years.

The Committee on Reclaimed Meadows have been furnished with full particulars relative to the expense of reclaiming, to which I would refer for full details.

Methuen, Nov. 3, 1860.

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JOSEPH NEWELL'S STATEMENT.

I enter for premium a crop of Wheat (Spring) of the Bald variety, which grew on one acre and forty-two rods of land, and weighed 2315 pounds, as per certificate enclosed with this statement.

The ground till last year had been mowed for a long time; last season it was planted with corn, and manured as follows: I spread upon the sward twenty ox cart loads of barn manure, and ploughed in about 8 inches deep; I then spread upon the furrow as many loads more of the same kind of manure, and harrowed in well and planted; after the corn came up I applied a handful of ground clam-shells to each hill.

The present season, for my wheat crop I ploughed the lot the 10th day of April, and prepared as usual by harrowing well; on the 14th I sowed three bushels of grain prepared as follows: I took a half hogshead and filled it two-thirds full of water then putting in the grain a little at a time, skimming all that floated on the surface, and cleansing it thoroughly; then draining off the water, I added strong brine (beef brine) enough to cover the grain and let it remain say eighteen hours; I then shoveled the grain into a cart, wet, mixing with as much slacked

lime as would adhere to it, and immediately sowed broadcast, and harrowed twice; this was on the 14th of April.

The 20th day of April I sowed grass seed on the same lot and harrowed twice again, and on the 23rd rolled it, which finished the labor till harvest. I cut it on the 10th day of August, put it into the barn on the 18th, and thrashed it the next week; thrashed with flail, and winnowed it twice. The result has exceeded my expectations, yielding 30 bushels strong of plump grain, weighing 60 lbs. per bushel to the acre; (see certificate.) No manure or dressing of any kind was applied to the crop this year, only as above stated. The soil is a heavy loam, underlying which is a slate ledge, which in many places comes to the surface.

As wheat is the most valuable of the cereal grasses, so it requires the greater care to produce it. The soil intended for its reception, should be brought into as fine condition as possible. To accomplish this, manuring and thorough culture are indispensable. If this is attended to, the soil will be in a loose and fertile state, and will possess such a depth of tilth as will have a tendency to preserve it in good condition. Some crops, especially corn, require high manuring, but with wheat, I think the case is otherwise. Land very rich or very highly manured is apt to cause during the hot season of summer a too rapid growth of straw at the expense of the seed; and rust, lodging, and ultimate failure, is frequently the consequence. But I find myself digressing from a mere statement of the crop in question, and return to give an estimate of cost, &c., in making up which, I charge the usual price for such work in this vicinity.

Expense of crop:—

To 1 day, self, man, and two yoke of oxen, ploughing,	$4 00
" " " two horses, harrowing,	3 00
3 bushels seed,	6 00
Sowing and rolling,	1 00
Cutting,	75
Binding up and putting into barn,	5 00
Threshing and clearing up,	8 00
Interest on land, $200 per acre,	15 00
	42 75

Credit by 38 1-2 bushels Wheat at $2 per bushel	77 00
2 1-2 tons straw, $8 per ton,	20 00
	97 00
	42 75
Nett,	54 25

West Newbury, Sept. 1860.

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EBEN G. BERRY'S STATEMENT.

I present for premium a crop of wheat raised on one acre of ground. The seed being a part of ten bushels grown from one half bushel the previous year, near the same spot. The seed was originally purchased in Boston. The amount sown this present season in May was five pecks. Amount *harvested* in August, was twenty-six bushels, measured, weighing sixty-four pounds to the bushel.

The land the previous year was planted with *corn*, and was in a fair state of cultivation. The dressing applied was compost, stable manure, and soil thrown in the hills, twenty loads to the acre. The soil is a clayey loam, free from rocks, and was twice ploughed, eight inches deep, by one man and a pair of horses, then, when sufficiently dry, was harrowed, sown and bushed. The crop was harvested and threshed by hand.

Danvers, Sept 25th 1860.

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DAVID PETTINGELL'S STATEMENT.

I offer for premium my crop of wheat grown on one acre, the product being thirty-one and a half bushels, weighing sixty four and a half pounds to the bushel. The kind sown was the Bald-head wheat. The soil is a dark gravelly loam. The land was broke up in the fall of '57, and planted with corn in the spring of '58. The manure applied was five cords of stable dressing per acre. It was planted with corn in the spring of '59, with four cords of stable manure applied to the acre. I used no manure the present season. The wheat was sown on the 18th of April; the quantity of wheat sown was five pecks.

I let my wheat stand till ready to thrash. I harvested August 21st.

Expense of crop :—

Interest on land,	$6 00
Ploughing,	2 00
Sowing and Harrowing,	1 50
Five pecks of seed,	2 50
Reaping and Binding,	4 00
Carting,	1 00
Threshing,	3 00
Winnowing and use of machine,	1 00
	21 00
Credit by 31 1-2 bushs., and two quarts, at $2 per bush.,	63 12
Straw,	12 00
	75 13
	21 00
Nett;	54 12

Topsfield, Nov. 8th, 1860.

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DANIEL G. TODD'S STATEMENT.

I present for your consideration, a crop of wheat raised on one acre of land, which was surveyed by Edward Smith of Rowley. It was sowed upon the 31st of March last. The land was ploughed and sowed in less than one day. The ground was harrowed before sowing, all at a cost of two dollars. The ground, two years ago, was worn out field-land ; formerly it was bushy pasture-land, not worth its taxes, being a light sandy loam. It was top-dressed with four cords of compost manure, worth eight dollars. The ground was broke up last year, and planted with potatoes, and manured with salt hay in the hill. I had a good crop. The wheat raised was the China-sea wheat. On this acre there were 1445 lbs, making twenty four bushels and five pounds. I sowed two bushels on this acre. The expense of harvesting, threshing and cleaning, was $6 25. This wheat was weighed in the presence of three disinterested

persons. It was thought by those who cut and bound up the wheat, that we lost from one-fifth to one-fourth by shelling out.

Rowley, Sept. 25th, 1860.

JOHN L. HUBBARD'S STATEMENT.

I would call your attention to a crop of barley raised by me on 146 rods of land. This crop was raised on two pieces of land, the whole being included in the survey, and at the time of sowing was supposed to contain one acre. The first lot of fifty nine rods and eleven links, had been under cultivation three years; two with corn, and one with potatoes, as a kind of experimental lot to test the best manner of applying manure; but the trial being unsatisfactory, I will only say that the land was well manured, and carefully cultivated. The soil is a clay loam, the clay in some spots cropping out. Its produce being less than half a ton of very poor hay to the acre, and lying adjoining a fresh meadow, is what is usually called cold heavy land. It was ploughed the last week in April, and six loads of 25 bushels each, spread on the furrow and harrowed in. The manure was from the horse stable, worked over by the hogs. After harrowing, the land, from its clayey texture, was very nubby, so much so that a roller was passed over it before sowing; two bushels of seed were sown: it was harrowed once, the grass seed sown and harrowed, and finished by rolling. The seed came up quick, even, and grew rapidly, and on the 17th day of June some of it was in head; on the 4th of July it was in full head and had begun to show the "red row", standing about three and a half feet high, being the handsomest barley I ever saw. A shower on that day beat down a part of it, which never came up again. The crop was harvested the third week in July, giving thirty-two large cocks on the lot. The other piece, containing eighty-six rods, fifteen links, was worked one day after the first. The land in this case was of much better quality than the other, a part of it being high sandy loam, running to a lower level, and a deep black loam. This had been in cultivation two years; with corn the first. It was manured in the hill with equal parts of old and green manure composted together. The second year the manure was ploughed in at the rate of twenty-five full

ox-cart loads to the acre, consisting of manure from the horse stable, thrown in the barn yard as it was teamed from the city in the fall and winter. When this lot was ploughed this spring, so much manure of the last year's application was turned out, that it was thought unnecessary to apply any more. The land in this case was only harrowed before sowing; the after treatment being the same as in the other case. This did not come up so even as the other, owing I think to its not being rolled before sowing. The yield in this case was forty large cocks from two and a half bush. of seed. The yield in grain, as will be seen by the certificates herewith presented, was 42 1-4 bushels from the 146 rods of land, weighing fifty-two lbs. to the measured bushel, being 2197 lbs, or within eleven lbs. of forty-eight bus., at the societies standard of forty-six lbs. to a bushel within a fraction of fifty-two and a third bush. to the acre.

My design in the management of the above named land, was to obtain a good crop of grain, and have the land left in good condition for grass; and my experience, in this and other cases, satisfies me that that is the best way to attain that end. It has always seemed to me, that it is almost useless to expect a good crop of hay, after taking from the land a crop of corn or potatoes and a crop of grain, without the application of any manure after the hoed crop.

It may be thought by many that the amount of seed sown, was much too large, but I am satisfied that it was not the case, for those parts of my grain that were the thinnest, lodged the most. Land that is under a high state of cultivation, needs heavy seeding, and if you do not grow straw, you will be sure to grow weeds. I am satisfied too, that rolling previous to sowing, is of very great advantage. I think to get the best crop of grain, the land should be as fine as an onion bed, because you can see to sow it much more even; the seed gets more evenly covered, and consequently comes up more nearly at the same time. In conclusion, I would say that I entered this crop for a premium, on the supposition that I had an acre, but on surveying it, it fell short. I have made this statement, and you can make any use of it you think proper. The certificates are all enclosed with this statement.

Expense of crop :—

Ploughing, sowing, and covering,	$6 00
Seed,	3 37
Harvesting,	3 50
Threshing,	6 00
Manure,	6 00
	24 87
Credit by 2 tons of Straw, $6 per ton,	12 00
Grain,	33 41
	45 41
	24 87
Nett,	20 54

Newbury, Nov. 15, 1860.

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JOHN C. ADAMS' STATEMENT.

The crop of corn which I have entered for premium, is not yet entirely harvested. I send you the weight of said corn for two rods, one hundred pounds, which is a fair average of the whole. The land was in corn last year, manured in the hill at the rate of five cords of barn-yard manure to the acre. The present crop was planted on the 21st and 22d of May, with the Dole corn, manured in the hill with five cords of compost worth 20 dollars. The cost of labor I estimate at twenty-four dollars, harvesting included. The land is of a sandy loam, valued at eighty dollars per acre. The proper certificates of the measurement of the land and weight of the corn, are attached hereto.

Newbury, Nov. 14, 1860.

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JAMES MANNING'S STATEMENT.

I herewith enter for premium a grass crop on an acre and twenty and a half rods of land, in Hamilton, on the farm belonging to Mrs. George T. Saunders of Salem, and which I carry on for her. The land has been measured, and the crop weighed, as will be seen by certificates accompanying this state-

ment. It had been sown with onions during the six previous years, and of course was highly manured. The maggots, however, destroyed the crop of onions last year, and partially the year before, so that I ploughed in what remained in August, and sowed it down with grass seed, (Herds grass and Red-top with three lbs. of clover.) At the same time, I sowed round turnip seed, and harvested from the land five hundred bushels. The grass seed caught remarkably well, and fearing that the winter might injure it, I put in a larger quantity of seed than is usually sown. It wintered well, and at the time for cutting, the grass, principally Herds grass and clover, stood very high and thick, forming as dense a mass as could be dried on the ground. It took two of us two days to mow, and three days to make it. It was weighed from the field, load by load, before going to the barn. A second crop—all clover—at once sprung up, which was harvested and weighed in the same manner as the first crop. The hay was well made, and has kept well to this date in the barn, as your committee, or any one else can have opportunity to see. The first crop harvested in July, weighed four tons and fifty pounds; the second crop harvested in September, weighed two tons and five hundred and sixty pounds, making a total of six tons, and six hundred and ten pounds on the above lot of land.

Hamilton, Nov. 1. 1860.

ROOT CROPS.

The Committee on Root crops, report that there were four entries for premiums, for their consideration, two of which were for potatoes, and two for cabbages. The committee, on examination of the statements presented, found that they all failed to conform to some of the most essential requirements of the society. The rule is as follows:

"Claimants for the premium on Grain and Root crops will be required to have their land measured by a competent surveyor, the crops weighed, and the amount of the same certified by some disinterested person." It seemed to the committee almost absolutely necessary that the above rule should be complied with by all the claimants for premiums, before they could judge of the merits of the several claims.

In all the claims before us, there was only one, that of S. A. Merrill, in which there was any certificate of the measurement of the land; in none of them was the weight of the crop given, and in none of them was there any certificate of the amount of the crop by some disinterested person.

The Committee on Root crops, cannot like most of the other committees of the society, personally inspect the articles or operations, upon which they are expected to recommend premiums, but they must be governed by the evidence presented to them in the statement which is made.

If the land is not measured, and a certificate of the same appended, the committee must first of all decide who of the claimants can guess the nearest on the measurement of land. If the crop is not weighed, the committee cannot determine who has the best crop, and the certificate of some disinterested person is necessary to avoid mistakes, as well as to put all claimants upon as equal footing as possible.

In the claims presented for our consideration for premiums, the committee for the reasons above stated, have decided to recommend no award, but hope that the statements may be published with the report. The committee think it proper to state for the benefit of the members of the society, that before coming to a full decision on this question, they took counsel of the Board of Trustees then in session, who seemed to be unanimously of the opinion, that the essential rules of the society should be strictly complied with, by all claimants for premiums.

EBEN S. POOR, CHAIRMAN.

DANIEL OSBORN'S STATEMENT.

I offer for premium a piece of land in potatoes measuring one

acre. The field borders upon the mill-pond of the "Danvers Iron Factory." It has been used for the culti vation of onions until the present year. It was ploughed and planted early in the month of April. The manure used was "Peruvian Guano," in the drill, four-hundred pounds to the acre. The variety of potatoes planted was "Jackson Whites," cut very fine. We commenced digging the first of August. We harvested three hundred and twenty-two bushels by actual measurement. All were marketable but fifteen bushels, which were too small. We have sold all but twenty bushels which are kept for seed. The price obtained was fifty cents per bushel in the Lynn market. The guano cost twelve dollars in Salem. Three days labor in hoeing.

It has been found by actual experiment upon land in this locality, that "Peruvian Guano" produces potatoes of a larger and better quality than barn manure. A good method would be to spread broadcast and plough in the dung, using the "Guano" in the hill or drill, being careful to have it well mixed with the soil before planting.

South Danvers, Oct. 24th, 1860.

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LEVERETT BRADLEY'S STATEMENT.

The crop of Potatoes, I offer for premium, grew upon a small part of the reclaimed meadow, which I have also offered for premium, containing seven-eigths of an acre. The depth of soil or muck was from four to ten feet. The product was two hundred and seventy-two and a half bushels, including all sizes. The kind of Potatoes, were Riley Reds, and St. Helenas. The meadow was cleared in the spring of '58, and planted with potatoes in the same year, July 3rd, producing a good crop, but injured by early frosts, for table use, not getting quite ripe. In 1859, I planted with potatoes, and obtained a good crop, planting earlier than the year before. This year I planted the latter part of May. I used no manure during these three years, and formed the hills at the time of planting, hoeing only once. If I should plant the same again, or any similar piece of meadow, should not hoe after planting, as I should perform both planting

and hoeing at the same time. I think it better for the crop of Potatoes, as there are no weeds, and the less the soil is worn, the better.

The Potatoes were of good quality, free from rot, although the mildew or rust struck the vines some three weeks before any frost, probably causing a less crop than otherwise would have been, had they not been affected by that fatal scourge.—The potatoes have been sold in Lawrence, by the barrel, at the rate of 60 cents per bushel, and more are wanted at the same price, but I cannot spare any more.

For further particulars, I refer you to the committee on reclaimed meadows, or if it is necessary to give more minute statements, please write me.

Methuen, Nov. 3, 1860.

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ROBERT BOOKHOUSE, JR.'S STATEMENT.

The crop of cabbages I present for premium, was grown on 3-4 of an acre of land, that was broke up last September; the following spring it was manured with between five and six cords of compost manure, a portion of which was spread on and mixed with the soil with a cultivator drawn by a pair of horses, and the remainder was applied in the hill.

The seed was sown in a hot-bed, and the plants transplanted in the field about the 12th of May.

The variety planted was Marblehead drumhead, otherwise called the Stone Mason cabbage, which is the standard cabbage in this section.

In the course of the season they were horse-hoed and hoed three times. I commenced cutting for market the 7th of August; the last was cut on Sept 25th, every plant headed except one.

The whole receipts for the crop amounts to $199.85. The most of the crop was sold on the ground at from 5 to 8 cents; those sold in Boston, brought 8 and 9 cents. The expenses on the crop were as follows: —

5 1-2 cords manure at $5 per cord,	$27 50
Work preparing the land and manure and planting,	8 00
Horse-hoeing, and hoeing three times,	11 00
Carrying six loads to Boston, at $3 a load,	18 00

Carrying three loads to Salem, at 1 dollar,	3 00
Seed, 2 ounces,	25
Crop, Dr. To	$57 75
Cr. by one half value manure,	$13 75
Crop,	199 85
	$213 60
	57 75
Profit on crop,	$155 85

Marblehead, Nov. 14th, 1860.

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S A. MERRILL'S STATEMENT.

I have a piece of land, measuring about one and a quarter acres, from which, in the summer of 1859, I cut about one and quarter tons of hay to the acre. In November of that year I ploughed this land, and in the ensuing spring, having spread on about five cords of green barn manure, I again ploughed, cross-ploughing to the depth of four inches, and harrowing well afterwards. I now set my hills for cabbages, three feet apart, (my furrows being also three feet apart,) and to each hill put one shovelful of compost, and covered this with loam about one inch thick, and dropped my seed,—planting to the depth of about half an inch. This was about the first week in April. About the first of May, I hoed and thinned leaving two plants to a hill. On the second hoeing, left but one plant to a hill.—When the plants were young, I spread Paris-plaster around and on them, to prevent the little black insects from destroying them; I did this once or twice a week for two or three weeks.

From this land, I have gathered five thousand, five hundred cabbages, averaging from twenty to twenty-five lbs per head without stumps. I have weighed several *with* stumps and leaves and found them to average from forty to fifty pounds. I took sixty of the last lot gathered, and had them weighed on J. L. Dodge's scales, and found their aggregate net weight to be one thousand eight hundred and ninety pounds.

In consequence of the great crop of cabbages this year, the

prices have been quite low. The average price that I obtained for mine, was seven dollars per hundred. The first part of the season, I sold some for ten dollars per hundred, but none during any part of the season for less than six dollars per hundred.—I subjoin some of the most important statistics:

Cost of marketing,	$110 00
Nine cords of manure,	54 00
Hoeing and cultivating,	22 50
Rent of land,	12 50
Preparing ground,	12 50
One casd of Paris plaster,	1 50
	213 00
Total receipts from sales at $7 per hundred,	385 00
Nett,	172 00

I also sowed seven thousand cabbages under glass, in March last, of the variety known as "Yorkers." These I transplanted in April into old ground, which had been planted the previous year with potatoes. I placed my hills two feet apart one way, and two and a half feet apart the other, and into each hill put a shovelful of compost made up of barn manure, night-cart manure and meadow mud, in equal parts, using about five cords to the acre. From this acre I got six thousand cabbages, which I sold, between the 10th of June and the 1st of August, at eight cents per head.

Salem, Nov. 13th, 1860.

COMPARATIVE VALUE OF CROPS AS FOOD FOR CATTLE.

The committee on the comparative value of the different kinds of crops as feed for cattle, beg leave to make the following report. Your committee would much rather have had some

subject to act upon that would not have obliged them to make a merely theoretical report, but as there was no claimant for the premium in this case we are obliged to make such a report or to make none at all, and therefore have concluded to throw out a few thoughts that have occurred to us on this matter. But few farmers are so situated as to be able to carry out a very systematic course of feeding, so as to test the comparative value of the various kinds of food he may have at his command. There are a great many things to be taken into consideration in a trial of this kind, as for instance the age and condition of the animal at the beginning of the trial, whether in gaining or losing flesh, the length of time the trial lasted, if milch cows, the quantity and quality of the milk should also be taken into consideration, and not by any means should the amount of labor necessary to lay in and feed out what is used be omitted. None of your committee have ever made any very exact experiments in this matter they are therefore obliged to rely upon the statements of others which they have seen published. Among these there is one which for apparent exactness and the high authority from which it comes would seem to be very satisfactory, but the conclusions arrived at so completely upsets the generally received opinions in regard to the value of many kinds of feed in use among stock-keepers, that we cannot refrain from adverting to it.

In this trial it is asserted that about 24½ lbs. per day of English hay kept a milch cow in present condition. This would give 4189 pounds of hay from December 1st to May 20th, and at a cost of $15 per ton, would make the expense of keeping a cow through the winter, $31·41. This seems very satisfactory for a cow of 1000 pounds, live weight, and is what intelligent farmers would, we think, call a generous allowance. This feed was continued for the term of fifteen days ; the same cow was then fed with the same quantity of hay and an addition of five pounds of shorts per day for fifteen days more, and shows the very remarkable gain of 25 1-3 pounds in that time, equal to 1 4-6 pounds per day or 298 pounds from Dec. 1st, to May 20th. This increase in weight is valued at 4 cts the pound, and all credited to the shorts, making them worth $1.35 cents per cwt. or $27 per ton. Now is this a fair trial of the value of

shorts? Would the gain be in this proportiion for any great length of time, and if it would not, then must not the value of the shorts be reduced in proportion to the falling off on the gain? We have seen, too, that the cost of keeping the cow in hay was at the rate of $31.41 for the feeding season. Now 2,328 pounds of shorts at $1.35 per cwt. comes to $31.42 as the cost of keeping a cow on shorts alone, supposing an animal would live on shorts alone, and no other more bulky food be necessary. This amount gives a fraction short of 14 pounds per day. Now if the animal will live on this amount per day, give milk all the time, maintain herself in present condition, then shorts are worth what is claimed, and it shows how much better for any one who buys feed, to buy them instead of hay, as the saving of room and also of labor would be of great account.

Now are these things so? Will a cow in milk thus keep in present condition for a period of 171 days? Your committee can hardly think she will on this amount of shorts, and therefore cannot believe that shorts are worth $27 per ton, when English hay is worth $15 per ton.

Another trial from the same source also sets forth as remarkable results as the other. In this case, meadow hay and corn stover were substituted for English hay, and the loss as shown by the statement is very remarkable, being at the rate of 598 pounds for the feeding season. Now can this be so? Would the loss be so great for any length of time on this feed? The cow consumed twenty-one pounds of hay and corn fodder, and five pounds of shorts per day, and lost on this feed three and eleven fifteenths pounds per day, being about six hundred pounds for the feeding season of 171 days.

The loss is charged to the hay and stover, and the balance struck accordingly which left the value of the hay and stover to be $3 83 per ton. No account is made of the five pounds of shorts per day which at $1 35 per cwt., would be $11 54 for the feeding season, and showing that meadow hay and corn stover are not worth the housing; for were it not for the shorts, the cow must certainly have starved to death.

For the reasons above stated, we believe that an experiment continued for so short a time cannot be satisfactory, and that public opinion has set a value upon the various kinds of feed,

much nearer the truth than can be ascertained by a trial of a few days continuance. Your committee had intended to examine at greater length this report from which have been taken the above statements, but it would extend our remarks more than would be proper, and we will conclude by saying that in our opinion, no kind of food can be substituted for English hay, to get the same amount of nutriment at the same cost, and that while roots, shorts and meal may be fed in connexion with the various grasses with good results, yet to fix their precise value, would require trials of greater length, and perhaps be attended with greater expense than most farmers would be willing to incur.

We believe that an animal fed on any one kind of food for a few days, and then changed to another better or worse, will show the true value of that food; but in order to get at anything like the true value of the article used, animals as nearly alike in age and condition as possible, should be selected and fed, each on a particular kind of food, for a period of at least three or four months.

And your committee also believe, that in order to get the most advantage from the article used, that regularity in feeding, both as regards time and quantity, should be strictly observed. If the Trustees wish to have this subject further investigated, we think an excellent opportunity presents itself at the Society's farm in Topsfield.

As no opportunity has occurred for a consultation among the members of the committee, since the writing of this report, the undersigned are chiefly responsible for what is said in it.

JOHN L. HUBBARD, } COMMITTEE.
PAUL T. WINKLEY, }

CRANBERRY CULTURE.

For the committee to whom was referred the subject of raising cranberries, I would respectfully say, that in consequence of a part of them not receiving notice of their appointment until the day of exhibition, together with other causes, they are not able to make so full a report as desirable. The chairman will state, however, that he visited the cranberry lot of John D. Hildredth, of Manchester, which was the only one entered with the society for premium, and that he was very much pleased with its appearance. They were cultivated upon a basin of rich deposit, which had undoubtedly been accumulating for years from the surrounding granite hills and foliage of the woods ; the area of which comprises about two acres; upon one side of this he has made a ditch, and thrown the remainder into beds, the whole of which is free from weeds and grass. The first bed formed, is set with plants which now entirely cover the ground and are of a uniform height, having an unusually healthy color, also an abundance of fruit buds fully developed ; the remaining bed with the same care, will exhibit the same appearance, and probably yield not less than four hundred bushels yearly. As Mr. Hildreth has successfully experimented upon upwards of twenty rods of land, the committee think he is entitled to the award of fifteen dollars.

A. FOWLER, CHAIRMAN.

JOHN D. HILDRETH'S STATEMENT.

The meadow on which I have cultivated the cranberry was formerly a bog swamp. In the spring of 1857, I cleared up 30 rods and planted potatoes. After I dug the potatoes in the fall, I dug the meadow over and cleared out every green thing, then gravelled over the lot about three inches deep, took vines from natural cranberry meadows, separated them, cleaned out all the grass, and made the vines clean. I set them in rows of about one and a half feet apart, and from eight to ten inches apart in the rows. The first winter the frost hove the plants out of the ground, and most of the tops died from exposure to

frost and sun, but they sprouted up again the next spring. They grew well the next summer, but produced no fruit. I kept the vines clear of weeds during the summer, by weeding and hoeing five or six times during the season.

In the fall of 1858, I covered the vines with hemlock brush; during the winter the ground moles eat off about one third of the vines. The frost again hove the vines out of the ground, as in 1857-8, but the vines were not killed as in that year. During the spring and summer of 1859, I kept the vines clear of weeds by weeding; did not hoe this season in consequence of the runners from the plants. I gathered this fall (1859) six or eight quarts of fruit.

In the fall of 1859, I built a dam, and flowed the meadow from November till the 28th day of May 1860, at which time I let the water all off. The vines were green and bright, and in July they blossomed. I did nothing more to them till I gathered the crop in September, then I pulled out all the weeds among them, when I gathered the crop. I had ten bushels of large and fair berries, and I judge that one third of the crop had been stolen before I gathered the fruit.

The quantity of land was thirty rods; the quality was bog meadow, or black swamp muck, varying from one to ten feet in depth. The expense of planting the thirty rods, including clearing the land, and gravelling, was sixty dollars. The expense of weeding and culture was forty dollars. The produce the third year (1860) was fifteen bushels, ten of which were gathered, and five estimated as stolen. The land was cleared from the wild state, and planted with potatoes. I set the cranberry vines in November.

Manchester, Oct. 3rd, 1860.

THE TREADWELL FARM.

The committee on the Treadwell Farm would respectfully report:—

They have held the required meetings at the farm since the last annual session of the Board of Trustees: and have authorized the sale of timber trees on the farm, and the cutting of such trees for fuel as served to interfere with the proper cultivation of the land. They secured plans and proposals for the building of a barn; and have instituted an experiment with manures—based on the circular issued by the Massachusetts Society for promoting agriculture.

The proceeds of the sale of timber are $412.25, now in the hands of the treasurer.

The lowest proposal for building the barn is:—for erecting a building 72 feet by 42 feet; 18 feet post, including painting, $1500 00

For cellar, and mortar wall, 275 00

The expense of the experiment in manures, according to the account of N. W. Brown, and to be passed to his credit, 174 12

It is well known that the barn upon the farm is in a very dilapidated condition, and that a new and more convenient building is required for the proper managemement of the estate. Every effort has been made to secure such a building; and the committee has already raised by subscription two hundred dollars, and by the sale of timber, referred to above, four hundred and twelve dollars and twenty-five cents. They would recommend that the fund which has accumulated in various ways from unclaimed premiums and not required for the library, amounting to about five hundred dollars, be appropriated to the same purpose. And they are satisfied that this sum, in all about eleven hundred dollars, together with such aid as Mr. Brown, the occupant of the farm, can afford to render under the terms of his occupancy, would furnish an ample and convenient building. They would urge upon the trustees the adoption of some plan by which the barn can be erected as early as possible.

In instituting agricultural experiments on the farm, the com-

mittee have endeavored to commence with such a system as would bring it into better cultivation, and prepare it for satisfactory results. Most of the land is light, sandy, and leachy; and, having been scantily manured for many years, it requires a long and systematic process of fertilization. Last year experiments were made with artificial manures, to but little purpose. And the committee conceived that they could not discharge their duty to the society, and be of more practical service to the farm than by adopting, this year, the following series of experiments, proposed by the State Board of Agriculture, and presented for premium by the Massachusetts Society :—

The Massachusetts Society for Promoting Agriculture, offers premiums for experiments with manures, as follows :— 1st premium, $100 00 : 2nd, $75 00 ; 3rd, $50 00.

Select a level piece of land of any convenient size, from twenty square rods up to as many acres or more, which should be as nearly equal in its character and conditions as possible. Divide it into five equal parts, numbering them 1, 2, 3, 4, and 5, for a rotation of three years.

"Divide the manure which it is proposed to apply, and which should be of a uniform character, into four equal parts. At the time of the first ploughing in the spring, spread evenly one-fourth of the manure upon plot No. 1, and then plough the whole field of an equal depth. Apply another fourth part of the manure to plot No. 2, and then cross plough the whole field to about half the depth of the first ploughing. Spread another fourth of the manure upon plot No 3, and harrow or cultivate the whole field ; after which sow or plant the whole evenly, with any crop preferred. Finally, spread the remaining quarter part of the manure upon plot No. 4.

"Observe that by pursuing this course, each of the five lots will receive equally a deep ploughing, a shallow ploughing, and a harrowing or cultivating, the only difference in them being that in No. I the manure is buried deep, in No. 2 shallow, in No. 3 buried only slightly, but coated with loam, and in No. 4 left exposed upon the surface ; while No. 5 gets no manure. The manure is to be spread broadcast and as evenly as possible. The after cultivation should be the same on each of the lots, and the harvest of each should take place at the same time.

"Let a statement of the character of the soil, whether light or heavy, dry or moist, leachy or retentive of manures, the crop of 1859, kind and amount and mode of application of manure in 1859, size of field covered by the experiment, depth of first ploughing, kind and amount of manure used in 1860, kind of crop, when and how sown, number of times and manner cultivated, and weight of product on an average rod of each plot be made in 1860, and returned in the annual report of each Society.

"If there is a double product, as grain and straw, corn and stover, let the weight of the secondary product, be given on each plot.

"If the competitor weigh the whole crop, instead of estimating it by an average rod, there will be no objection to such a course.

A brief synopsis of the weather for each of the following months, by dividing each month into three parts, and using the terms dry, moist, and wet, to indicate the general character of the weather, will also be expected.

	FIRST THIRD.	SECOND THIRD.	LAST THIRD.
MAY - - -			
JUNE - - -			
JULY - - -			
AUGUST - -			
SEPTEMBER -			

"A similar report of all the above items, except the nature of the soil, will be made in 1861, and in 1862, when the premiums will be awarded. No manure is to be applied to the second and third crop."

"The above premiums are open to competitors throughout the Commonwealth. Competitors for premiums offered by other Agricultural Societies are invited also to compete for the above, the same experiments serving for both, by filling a duplicate statement with the Secretary of this Society.

"In awarding the premiums, all other things being equal, preference will be given to those which are tried on the largest space of land, and also where the competitor weighs the whole crop instead of an average rod. Notice of an intention to compete, must be given to the Secretary, on or before the first day

of January, 1861, with the statement required in the terms of the Premium.

The following is the report of the experiments on the Treadwell Farm, as made by N. W. Brown, the occupant.

1st. The entire crop was corn.

2nd. Amount of land, 2 1-2 acres.

3rd. Amount of manure—16 cords of best barn-yard manure.

4th. Soils light, sandy, leachy.

5th. Crop of 1859—Barley turned in green, and sowed with Ruta Baga.

6th. In 1859, one acre manured with good barn-yard manure.

7th. Depth of first ploughing, ten inches.

8th. Hoed three times.

9th. Lot No. 1. Manure harrowed in; weight of entire crop of corn and stover, 2820 lbs.; weight of corn in the ear, 1470 lbs.

10th. Lot No. 2. Manure ploughed in shallow; weight of entire crop of corn and stover, 2800 lbs.; weight of corn in the ear, 1470 pounds.

11th. Lot No. 3. Manure spread on the surface; weight of corn and stover, 2590 lbs.; weight of corn in the ear, 1470 lbs.

12th. Lot No. 4. Manure ploughed in deep; weight of corn and stover, 1605 lbs.; weight of corn in the ear, 756 lbs.

13th. Lot No. 5. No manure; weight of corn and stover, 1680 lbs; weight of corn in the ear, 840 lbs.

The corn on lot No. 4, rusted very badly, and the crop was of little value.

A careful account of labor, family expenses, expenditure on buildings, tools, &c., cost and amount of crops, has been kept by Mr. Brown.

A monthly meteorological report has also been made to the Smithsonian Institute.

The committee would recommend that by means of thorough drainage, manuring, and systematic ploughing, the farm be brought into better condition for further experiments in cultivation. And they would request the members of the society to

forward such suggestions as will promote the interests of the farm, and will forward the liberal design contained in the donation.

DANIEL ADAMS.
ALLEN W. DODGE,
JOHN W. PROCTOR,
RICHARD S. FAY,
WILLIAM SUTTON,
GEORGE B. LORING,
ROYAL A. MERRIAM,
WILLIAM R. PUTNAM, } COMMITTEE.

FARMS.

The Committee on Farms would respectfully report:—

No entries of farms for premiums, have been made during the past year, notwithstanding the liberal reward offered by the society. Perhaps it ought hardly to be expected that any pecuniary consideration within the means of our association, would afford a sufficient remuneration for the trouble and time necessary to prepare a suitable account of the business of any one farm in our county, for the period of twelve months. The manual labor of agriculture is exhausting. The various duties of the active and industrious farmer are intricate and absorbing. The ever changing variety in the results of agricultural operations from year to year ; the surprises which occur, under the hidden influences of nature, an abundant crop here, a scanty one there, produced by causes beyond man's reach—the disappointments which often follow well-directed industry, the accidents of weather, the uncertainties of all animal and vegetable productions—all combine, we are aware, to discourage the faithful farmer in his attempts to record the efforts and designs, and results of the year. We can perhaps hardly expect to induce our farmers to make such a record, by any pecuniary reward, which we can offer.

But there are other motives which should not be forgotten. The first necessity in every successful operation, is a systematic arrangement of our affairs. It is so in trade, in manufactures, in commerce; and from this law agriculture is not exempt. There is a great deal of tradition it is true in farming. The son remembers his fathers mode of tilling the earth, and has inherited perhaps his father's skill in the care of animals, and he may be a good farmer. But when he would go beyond this, he must turn to the recorded operations of others; and when he would know exactly how he is progressing himself, he must find in his own diary and account books, the history of what he has done from day to day, and from year to year. It is this systematic management, which develops the resources of his farm, by making it a matter of care and study—something more than the theatre of tedious and reluctant daily toil. And although success often comes without it, and failure sometimes comes with it, still it is one of those means which will stimulate the farmer to new exertion, and will tend to have a great influence in all his efforts towards prosperity. It is well to *know* what a crop costs. It is well to *know* what method produced the best crop. It is well to *know* what crop is most profitable in every locality. It is well to *know* how much the farm returns each year. It is well to *know* what animals can be profitably reared and fed. And all this cannot be *known* without a faithful and systematic record; with it, it can be. And this valuable knowledge is one of the rewards which the daily record brings to him who makes it.

Of the value of this knowledge to others, it seems hardly necessary to speak. It constitutes the most valuable literature of agriculture. The theories and speculations of ingenious thinkers have their attractions, and they may possibly lead to good practical results; but he who lays before us an actual operation in drainage, he who gives us the results of various modes of ploughing, he who teaches us from experience the best method of fertilization, he who records the processes by which his farm has risen from a wilderness into all the luxuriance and profit of successful agriculture, does more for his fellow-laborer on the land, than all the theorists combined can ever hope to do. He contributes genuine wealth to the community in which

he lives. He enrolls himself with the Smiths, and Youngs, and Mechis, and Tulls—the teachers and guides of agricultural labor. He affords that light which will alone guide us through the dark places of farming, and protect us against those temptations which in the shape of new inventions, and condensed fertilizers, and recently discovered crops of abundant promise, beset the farmer on every hand, to lead him away from the legitimate pursuit of his calling, and make him a prey to every form of imposture. When we remember that no man can afford to cultivate an acre of land for nothing, or even to resign it to a doubtful experiment one year out of the few alloted him here on earth, should we not rather learn of him who can tell us how he has reaped the largest reward, rather than of him who offers the large promises of Chinese Sugar Cane, or Hungarian Rye Grass? When we know that from a judicious application of those manures which in this region every farmer can collect for himself by the application of industry and economy, shall we not learn of him who does this work well, rather than of him who presents us an easier method by which we may enrich our acres, and would exhaust our soils, and our pockets, and our patience, with a long list of condensed substitutes for the fertilizing materials which lie all around us? It is the recorded operations of skillful and successful farmers, which may teach us how far to yield to these temptations, and how far to avoid them. It is this instruction which our farmers need. And if one of their number has raised the largest crop of corn, or carrots, or hay, let him teach the rest how it was done, with what manure, with what land, with what seeding, with what cultivation. If one has reclaimed swamps and meadows profitably, let him tell us how, that we may go and do likewise. These are the teachers, who if they will, may make an Agricultural college out of every farm in our county.

The benefit of every accurate and systematic attempt at farming in our country is two-fold—to him who makes it, and to those who observe and study it. There is no doubt that men in Massachusetts cannot pursue with profit the careless and wholesale modes of agriculture, adopted in newer and more sparsely settled regions of our country. There are certain branches of this industry to which our soil and climate are not adapted, and in which we cannot hope to compete with our

neighbors. We have undoubtedly yet to learn what we can most advantageously raise on our land—what is best adapted to our home market—what is brought into the least competition with crops brought from regions better adapted to their production. Before the hog crop of Ohio became a staple product of that great State, the farmer of Massachusetts found it profitable to raise and fatten pork. Before the existence of the present rapid communication between our large cities and the rich pastures of the West and South-west was established, the production of beef was a source of large profit to our community. But are these things so now? Has it been determined whether the conversion of crops into beef and pork, is the most profitable mode of disposing of them? Can the farmer, who for years has fed his corn and hay to animals fattened on his own premises, and who has received in this way a fair remuneration for his labor, assure you by figures that he has made the most possible out of that corn and hay? A farm, unless entirely neglected, will always pay something, but justice to the bounteous earth demands that it should be enabled to exert its largest capacity for the benefit of him who tills it. And this it cannot do if the labor bestowed upon it, is scanty or misdirected.

There are in Essex county nearly three thousand farms, and about one hundred and fifty thousand acres of land improved. Our agricultural population is peculiarly prosperous. We have within our limits five large cities, and many thriving villages, which furnish us with excellent and convenient markets. One section derives a large annual income from its hay crop, another from its root crops, another from its dairy, and many from the garden and the orchard. Our farmers are not behind any portion of the State in their industry and enterprise. And yet it is doubtful, whether on the whole the agricultural interest of the county is improving. Our pasture lands are deteriorating. Our woodlands do not increase in value, in profitable ratio. Our hay crop does not increase as it should. Our old orchards do not renew their youth under kindly care. The wet lands of the county yield their wretched crop of meadow hay, just as they did half a century ago, instead of smiling under a burthen of sweeter grasses, for the production

of which they have been warmed by dyking and draining. This ought not to be. At the present price of land per acre, and at the average price of hay, it is now more profitable to reclaim wet lands, than it is to labor in most of the mechanical occupations, or to engage in most of the smaller branches of trade—not easier, perhaps, but more surely profitable. Is there any reason why our farmers should not emulate each other in improving their pasture lands and meadows, and vie with each other in rendering an accurate account of the expense and profit or loss of each operation? These pastures and meadows occupy a large portion of the county, and may be made a source of large profit, if carefully and economically improved. Is there any reason why our farmers should not learn of each other in this matter?

And then, again, the selection and care of animals for our farms; how much may the farmers of each locality teach each other in this respect! With the exception of those farms devoted to market-gardening, and to small tracts of land receiving their manure from the sea, cattle-husbandry in its various branches lies at the foundation of our farming. Let every farmer resolve that he will stock his farm to its utmost capacity—and what should we see? The acre which now yields a ton of hay, would soon be forced to double that crop,—in the beginning *for* the cattle, and afterwards *by* the cattle. That old pasture now overrun with briars and bushes, and capable of feeding two or three cows, which are obliged to travel and work for a living from sunrise to sunset, would soon be called upon to feed ten times that number, and the expense of reclaiming would be paid by the cows. Whatever is done upon the land for the benefit of cattle, always receives its return from the cattle themselves, if they are properly selected and properly used. What a subject for inquiry and investigation is here opened! Can we not learn of each other the class of animals best adapted to our soil—whether for the dairy or shambles; and having determined this, may we not arrive by a system of experiments at the most economical mode of feeding so as to produce the largest result?

We were once told that thirty thousand sheep could be fed in the county, in addition to the stock already kept, without

any appreciable addition to the agricultural expense of the county. Can this be demonstrated? There is no doubt of the profits to be derived from sheep husbandry; and there is no doubt of the advantage to be derived to the pastures upon which they are fed. There seems to be no reason why a careful and systematic experiment of this branch of agriculture should not be made among us. We live in a region surrounded by markets for wool and mutton. We have pastures which need the beneficial effects of sheep-feeding. And yet an enterprising and public spirited citizen of our county devotes his time and a portion of his ample means to the introduction among us of the most approved breed of mutton sheep, now known in England, and not only are the best of his flocks purchased by farmers in other parts of the State, but the choicest rams imported by him from Oxfordshire, are passed by unheeded at our exhibitions. If there is profit in sheep husbandry, let those of our farmers who have tried it give us the balance made by rearing and feeding; let them ascertain the most profitable animal to feed, whether fine-wooled or coarse-wooled, whether Merino or Cotswold, or Oxfordshire Downs, or South Downs, or Leicesters. If the profits and advantages of sheep husbandry are what its advocates assert, there is no reason why three thousand farmers in Essex county should not reap their proportion of these profits, nor why the three thousand farmers should not be benefited by these animals.

We have hastily referred to some of the topics in which our farming community is concerned for the purpose of awakening if possible an interest in them, sufficient to insure that amount of experiment and information which always grow out of industry and honest emulation. A well managed farm—a farm devoted to one crop in the main, or devoted to "mixed husbandry"—is a study worthy of every farmer. The details of a successful operation in growing corn, or wheat, or rye, or barley, or roots, or grass, or fruit, are always interesting and profitable; but they may be given by a farmer who with the exception of this one crop, has come very far short of good farming. His general system of husbandry may be very deficient. His buildings may be badly arranged. His manures may be unskilfully applied. His system of feeding may be careless and extravagant.

His farm accounts may be loose and inaccurate. How much more valuable, therefore, are the details of a well conducted farm in the whole—a statement of the preparation and application of manures, of the time of planting, of the mode of cultivation, of the choice of animals, of the profits on the crops, of the expense of labor, of the method adopted to bring the farm up to the standard of good agriculture. We would urge upon our farmers an increased interest in the entry of their farms for premium, confident that they will derive a benefit from it, compared to which the premium is a mere trifle, and assuring them that while they benefit themselves, they will also benefit the community in which they live. We have many good farmers among us, skilful, prosperous, thriving men, who manage their farms well; and whose example and information ought not to die with them. We trust that another year will find them carefully recording their operations, and offering them for the guidance of others.

GEORGE B. LORING, CHAIRMAN.

Dr. William Sutton, Treasurer, in account with the Essex Agricultural Society. Cr.

1859. October.	To balance of former account		$955 82
	To State Bounty received		600 00
1860. October.	To amount received of new members		114 00
	To Dividends rec'd in October, 1859, and April 1860		527 98
	To interest on loan		18 00
	To Essex Railroad coupons,		42 00
	To amount received for account of Treadwell Farm		364 50
	To unclaimed premiums and cr. Colman Library		72 25
			$2694 55

1859. October. 1860.	By amount of Premiums, and Gratuities awarded by the Trustees, 1859—60		$904 00
October.	By Colman Library		5 50
	By Expenses as follows:		
	Exhibition	171 58	
	Market Days	157 51	
	Printing	327 10	
	Secretary's Salary	100 00	
	Freight, Postage, &c.	55 75	
	Plans of Drains	24 00	
	Diplomas	48 00	
	Sundries	10 25	893 79
	Balance to new account,		891 26
			$2694 55

FUNDS BELONGING TO THE SOCIETY.

16 shares Warren Bank, cost	$1595 40
12 " Exchange Bank, par	800 00
22 " Commercial Bank, cost	1471 66
7 " Mercantile Bank, par	700 00
6 " Merchants Bank, par	300 00
5 " Village Bank, par	500 00
3 " Salem Bank, reduced to	225 00
15 " Danvers Bank, cost	1471 25
Notes Receivable	300 00
Essex Railroad Bonds, par	700 00
Cash on hand as above	891 26
	$8954 57

To amount brought up		8954 57
Deduct amount due Colman Library account,		557 91
Funds on hand 1860		8396 66
In 1859 this item was	8602 97	
Deduct loss on Salem Bank Stock, reduced	75 00	8527 97
Decrease in 1860		$131 31

The balance in favor of Treadwell Farm account, to this date, is $67 66

E. E. WILLIAM SUTTON, Treasurer

SALEM, October, 1860.

We have examined the above account and the vouchers of the Treasurer, and hereby certify that we find said account correct in all its parts.

SALEM, Dec. 14, 1860. R. S. DANIELS, Auditing Committee.

Officers of the Society.

FOR 1860-61.

ALLEN W. DODGE, Hamilton, *President.*

LEWIS ALLEN, South Danvers,
JEREMIAH COLMAN, Newburyport,
DAVID CHOATE, Essex,
JEREMIAH SPOFFORD, Groveland,
} *Vice Presidents.*

WILLIAM SUTTON, South Danvers, *Treasurer.*

CHARLES P. PRESTON, Danvers, *Secretary.*

HONORARY TRUSTEES.

James H. Duncan, Haverhill,
John W. Proctor, S. Danvers,
Richard S. Fay, Lynn,
Daniel Adams, Newbury,

TRUSTEES.

Jonathan Berry, Middleton,
Robert Brookhouse, Jr., Salem.
John D. Cross, Ipswich,
Richard Dole, Georgetown,
Thos. P. Gentlee, Manchester,
Joseph How, Methuen,
John M. Ives, Salem,
John B. Jenkins, Andover,
John Keeley, Haverhill,
E. G. Kelly, Newburyport,
Joseph Kittredge, N. Andover,
Cyrus W. Lord, Beverly,
George B. Loring, Salem,
I. Osgood Loring, N. Andover,
Lambert Maynard, Bradford,
Royal A. Merriam, Topsfield,
Joseph Newell, W. Newbury,
Josiah Newhall, Lynfield,
Henry K. Oliver, Lawrence,
William Osborn, Lynn,
Paul D. Patch, Hamilton,
Edward H. Pearce, Gloucester,
Benjamin C. Putnam, Wenham,
Wm. R. Putnam, Danvers,
Paul Titcomb, Newbury,
D. M. Tukesbury, Amesbury,
Horace Ware, Marblehead,
E. S. Williams, Newburyport,
Enoch Wood, Boxford.

The Trustees, whose term of office will expire on the day of the annual meeting of the Society in 1861, are :—

I. Osgood Loring,	Cyrus W. Lord,
John D. Cross,	Joseph Newell,
Edward H. Pearce,	D. M. Tukesbury,
William Osborn,	Benjamin C. Putnam,
William R. Putnam,	Royal A. Merriam,

The vacancy in the Board by the election of Charles P. Preston, as Secretary of the Society, will also be filled at the same meeting.

NEW MEMBERS—1860.

Benjamin P. Adams, Topsfield,	Isaac F. Knowlton, Hamilton,
Geo. W. Boynton, Georgetown,	John H. Lovett, So. Danvers,
Rufus H. Brown, So. Danvers,	John Nutting, Marblehead,
J. L. Colcord, " "	John E. Oliver, Salem,
Caleb Child, Marblehead,	Haskell Perley, Georgetown,
Daniel P. Emerson, Lynnfield,	William Porter, Wenham,
George E. Emery, Lynn.	William Potter, So. Danvers,
Ezekiel Gowen, West Newbury,	John Price, Manchester,
George Haskell, jr., Essex,	Allen Rowe, Swampscott,
Kendall Jenkins, Andover,	Geo. W. Winslow, Marblehead,

☞ Any citizen of the county may become a member by paying the sum of three dollars to increase the permanent funds of the Society, and he will receive a certificate of his membership from the Secretary. No fines or assessments are ever imposed. Members are entitled to the free use of the Library and a copy of the Transactions each year. All ordained ministers of the gospel residing in the county, and editors of newspapers, published therein, are entitled to the privileges of the Library.

LIST OF PREMIUMS, &c.

STALLIONS—FOUR YEARS OLD AND OVER.

Simeon Bardwell, Andover, first premium, - - -	$15 00
Thomas Sawyer, Boxford, second " - - -	10 00

STALLIONS—UNDER FOUR YEARS.

Henry L. Hill, North Andover, first premium, - -	7 00
M. F. Hill, Byfield, second pre. - - - - - -	5 00

BROOD MARES.

Frederick Perley, Danvers, first premium, - - -	10 00
Joel Putnam, " second " - - -	8 00
Horace Ware, Marblehead, third " - - -	6 00

FARM AND DRAFT HORSES.

Jacob Farnham, North Andover, first premium, - -	10 00
Abiel Wilson, " second pre. - -	8 00
John Perkins, South Danvers, third pre. - - -	6 00

COLTS—FOUR YEARS OLD.

George B. Loring, Salem, first premium, - - -	7 00
Luther Noyes, Newbury, second " - - -	5 00
Edward Pyne, Gloucester, gratuity, - - -	3 00

COLTS—THREE YEARS OLD.

George Dane, Hamilton, first premium, - - -	6 00
John Rowe, Haverhill, second " - - - -	4 00

COLTS—TWO YEARS OLD.

James Cary, Swampscott, first premium, - - -	5 00
Thomas Sawyer, Boxford, second " - - - -	3 00

YEARLING COLTS.

Gilbert Conant, Ipswich, first premium, - - -	4 00
Abiel Wilson, North Andover, second pre. - -	2 00

BOARS.

Daniel Richards, Danvers, first premium - - - 5 00
Byron Goodale, South Danvers, second pre. - - 3 00

BREEDING SOWS.

Byron Goodale, South Danvers, first premium, - - 5 00
Benj. P. Ware, Marblehead, second " - - 3 00

WEANED PIGS.

Theron Johnson, North Andover, first premium, - - 5 00

OXFORD DOWN SHEEP.

Richard S. Fay, Lynn, first premium, - - - - 10 00

COTSWOLD BUCK.

Charles Coliss, Haverhill, premium, - - - 5 00

PLOUGHING WITH HORSES.

Daniel Richard, Danvers, first premium, Manny's Horse Mower, - - - - - - - - - 00 00
Jacob Farnham, North Andover, second pre. - - 15 00
Joseph Longfellow, Newbury, third " - - 12 00
Robert Brookhouse, Jr., Marblehead, fourth pre. - 9 00
Samuel A. Merrill, Salem, fifth pre. - - - - 7 00
Eben G. Berry, Danvers, sixth " - - - - 5 00
John H. Lovett, South Danvers, seventh pre. - - 3 00

FARM IMPLEMENTS AND WAGONS.

George H. Pearson, Salem, wagon, gratuity, - - 2 00
E. A. Burbank, Salem, " " - - - 2 00
Gilman Andrews, Salem, two wagons " - - - 3 00
Richard Cutts, Salem, wagon, " - - - 2 00

HORSE MOWER.

Fisk Russell, Manchester, N. H., gratuity, - - - 2 00
Sam'l A. Merill, Salem, gratuity, - - - - 2 00
" " " " Two-horse mower, - - 1 50

SPRING-TOOTH HORSE RAKE.

Alzirus Brown, Worcester, gratuity, - - - - 2 00

PATENT HARROW TOOTH.

Wentworth and Fifield, Salem, gratuity, - - - 1 00

FEED CUTTER.

Luther Thayer, Brighton, - - - - - - 1 00

KIDDER'S PATENT BEE-HIVE.

Moses Jewett, gratuity,	1 00

WATER HOISTING APPARATUS.

Waterman, gratuity,	1 00

RECLAIMING WASTE LAND.

Jonas Abbott, Andover, first premium,	15 00
Paul T. Winkley, Newburyport, second pre.	10 00

RECLAIMED MEADOWS.

Leverett Bradley, Methuen, first premium,	15 00

UNDERDRAINING LAND.

George French, North Andover, first premium,	15 00

GRAIN CROPS.

John C. Adams, Newbury, corn crop, premium,	10 00
John L. Hubbard, Newbury, barley, gratuity,	8 00
Leverett Bradley, Methuen, rye, premium,	8 00
Joseph Newell, West Newbury, wheat, "	8 00
Eben G. Berry, Danvers, wheat, gratuity,	3 00
Daniel G. Todd, Rowley, " "	3 00
David Pettingill, Topsfield, " "	3 00

HAY.

James Manning, Hamilton, premium,	8 00

CRANBERRY CULTURE.

John D. Hildreth, Manchester, premium,	15 00

BUTTER.

Mrs. Sarah Holt, Andover, first premium,	10 00
Sarah L. Ridgeway, West Newbury, second pre.	9 00
S. B. Swan, Danvers, third pre.	8 00
Mrs. Farnham Stiles, Middleton, fourth pre.	7 00
Mrs. C. M. Moulton, W. Newbury, fifth pre.	6 00

CHEESE.

Joseph Marshall, Essex, first premium,	8 00
Mrs. H. M. Titcomb, West Newbury, second pre.	6 00
Mrs. D. L. Goodale, " " third "	4 00

Awarded by the Committee on Poultry,	$18 50
" " " Vegetables,	55 25

Awarded by the	Committtee	Fruit,	- - - -	126 50
"	"	"	Flowers, - - -	35 00
"	"	"	Articles from Leather, -	9 00
"	"	"	Counterpanes, Rugs, &c.,	30 00
"	"	"	Fancy Articles, &c., -	39 00
"	"	"	Bread and Honey, -	18 50
		Total,	- - -	$724 25

RECAPITULATION.

FARMS, &c.

Amount awarded to Under-draining Land, - -	$15 00	
" " Reclaiming Waste Land, - -	25 00	
" " Reclaiming Meadow, - -	15 00	
" " Cranberry Culture, - - -	15 00	
" " Ploughing, - - - -	51 00	
		$121 00

FARM STOCK.

Amount awarded to Horses, - - - -	$124 00	
" " Swine, - - - -	21 00	
" " Sheep, - - - -	15 00	
" " Poultry, - - - -	18 50	
		$178 50

FARM PRODUCTS.

Amount awarded to Wheat crop, - - -	17 00	
" " Corn crop, - - - -	10 00	
" " Rye crop, - - - -	8 00	
" " Barley crop, - - -	8 00	
" " Grass crop, - - -	8 00	
" " Vegetables, - - - -	55 25	
" " Fruit, - - - -	126 50	
" " Flowers, - - - -	35 00	
" " Butter and Cheese, - - -	58 00	
" " Bread and Honey, - - -	18 50	
" " All other objects, - - -	98 50	
		$442 50
Total, - - - -		$742 25

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